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INTRACRANIAL TUMOUR *

Diagnosis, Prognosis, and Treatment of Brain Tumour—Fifty Years Ago and To-day

BY

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Fifty years ago, to be exact it was on November 25th, 1884, a tumour of the brain was operated upon and removed. This case, the first of its kind recorded in the literature, naturally aroused widespread interest. The present occasion would appear to be appropriate for a review of the steps which have marked the progress of our knowledge of intracranial tumours—with special reference to the practical advances—during the intervening period. It is well, indeed, that we should pause from time to time to take our bearings in order the better to visualize the possible lines of advance the future holds in store. A retrospect appeals to one who has had the good fortune to have been brought into contact with a number of those who have played a prominent part in the making of this chapter of medical history.

Tumours of the brain are referred to by the earliest medical writers, to be dismissed in a few sentences by them. Nor is this surprising, for while headache, fits, paralysis, loss of vision, etc., were observed in cases in which a tumour was found post mortem, it was recognized that these symptoms were met with in other conditions. It may be that on occasions the astute physician suspected or diagnosed a tumour within the cranium, but even if this were so, little could be done to relieve the distressing symptoms. The possibilities of surgery had not yet been conceived, and the unfortunate patient was doomed to certain death, usually preceded by a prolonged period of suffering.

The introduction of the ophthalmoscope by von Helmholtz in 1851 and the discovery of " optic neuritis " were notable diagnostic advances, for the clinician was now possessed of an objective sign which, although not pathognomonic, is present sooner or later in the great majority of cases of intracranial tumour. Von Graefe, whose observations upon optic neuritis were classical contributions, aptly emphasized this historical landmark when he designated the past as the " pre-ophthalmoscopic period."

A new era dawned with the establishment of the doctrine of cortical localization in the seventies of last century. Although the phrenological speculations of the brilliant anatomist Gall had been discredited, the suggestion that individual functions were located in different portions of the brain was " in the air " when Broca, in 1861, demonstrated three cases in which articulate speech had been abolished by a localized lesion of the left hemisphere in the region of the convolution now known by his name. It was not, however, until some years later that the experimental investigations of Fritsch and Hitzig (1870), which were confirmed and amplified by Ferrier (1873), convinced the world that particular functions are represented in particular areas of the cortex. Hughlings Jackson, whose classical communication upon " Epileptiform Convulsions from Cerebral Disease " was read before the International Medical Congress in London in 1881, had, however, in the 'sixties, expressed views regarding the representation of function in the brain, based upon his clinical observations, which were far in advance of the existing state of knowledge.

The clinicians now applied themselves with assiduity to the correlation of the symptoms and signs presented by the patient during life with the pathological lesions met with post mortem, and a wealth of diagnostic data was thus accumulated. Diagnosis was making satisfactory progress, but the prognosis in cases of intracranial tumour, apart from the gummata, was still as hopeless as it had ever been.

The First Case and its Outcome

It was in the autumn of 1884 that a young farmer was admitted to hospital under the care of Alexander Hughes Bennett, complaining of severe headache and vomiting, progressive weakness of the left hand, and localized (Jacksonian) fits. There was, too, a " double optic neuritis " and some tenderness on deep pressure over the right parietal region. Hughes Bennett came to the conclusion that the symptoms were due to " an encephalic growth, probably of limited size, involving the cortex of the brain, and situated at the middle part of the fissure of Rolando," and he asked his colleague Rickman Godlee to operate on the patient. It is probable, I think, that Hughes Bennett visualized to an exceptional degree the possibilities of surgery ; for his father, the distinguished physician and physiologist who held the chair of the Institutes of Medicine in Edinburgh, had died but a few years previously, and at the necropsy there was found an unsuspected tumour about the size of a hen's egg lying over the right temporal lobe, in which it had produced a deep depression. This incident must, I submit, have left a lasting impression upon the mind of his able son. Be this as it may, Hughes Bennett persuaded Godlee to operate, and the tumour was found and removed. Godlee's name is constantly referred to in connexion with this case, whereas Hughes Bennett's is seldom mentioned. Yet it was Hughes Bennett who diagnosed the growth, located it, and I think probably urged Godlee to operate. The credit accorded to the achievements of the surgeon often eclipses the part played by the physician. This case, which heralded the birth of the surgery of intracranial tumours, created a profound impression. A new

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field was thereby opened up to the surgeons, and the experimental researches of Ferrier and others, so severely criticized and condemned by the anti-vivisectionists, were vindicated in no uncertain manner.

The attention of the physicians was now concentrated more and more upon intracranial tumours, and contributions to the literature multiplied. But the spirit of optimism engendered by Hughes Bennett and Godlee's success was doomed to disappointment, for in many cases the tumour was not found, in others the growth proved to be irremovable, and the operative mortality was very high. Byrom Bramwell wrote in 1888, in what Cushing refers to as " his much neglected book on intracranial tumours " :

" The following appear to me to be the most important conditions for successful operative interference: (1) satisfactory localization of the tumour ; (2) the tumour must be accessible ; and (3) the tumour must be single and of such a pathological character as to permit complete enucleation or removal."

Victor Horsley, in a paper read before the International Medical Congress in Berlin in August, 1890, was the first to advocate the operation of palliative decompression. To quote his words :

" Not only are the headache and vomiting relieved, but a most interesting arrest of the optic neuritis occurs, a phenomenon which I have now observed repeatedly during the last five years, and which, in many cases, is a source of much amelioration to the patient from the consequent recovery of sight."

Horsley's observation threw new light upon the nature of optic neuritis, to which the more appropriate term " papilloedema " is now applied. It is well to remember in this connexion that an intense papilloedema may exist without any visual impairment, and that if vision is to be saved operation should be advised before there is any evidence of failure.

But notwithstanding the strides which were being made in diagnosis, the surgical results in cases of intracranial tumour were very disappointing. David Ferrier, who opened a discussion on the treatment of intracranial tumours at the meeting of the British Medical Association held in Edinburgh in 1898, introduced his remarks with the words, " the treatment of intracranial tumours forms a rather melancholy chapter in therapeutics." He expressed the view that the great majority of brain tumours are so situated, or of such a nature, as to preclude the possibility of their successful removal, and after referring to the percentage of those operable, variously estimated by different observers, he concluded: " It is a fair estimate to say that only 7 per cent. are capable of being successfully dealt with." Of thirty-eight cases—thirty-one cerebral and seven cerebellar—in which a tumour was exposed and operated upon by Horsley or Ballance at the National Hospital during the previous ten years (no reference is made to cases in which the tumour was not found or in which its situation was not located and a palliative operation carried out), it had been wholly or partially removed in twenty—sixteen cerebral and four cerebellar. Six patients from whom a tumour had been removed—five cerebral and one cerebellar—had lived for a year or more after the operation. Oppenheim's results, to which he refers in his book *Tumours of the Brain*, published in 1902, were equally discouraging. Twenty-four of his patients had been operated upon. The diagnosis of brain tumour was proved to be correct, either at the operation or post mortem, in twenty-two cases, while in two no opportunity for corroboration was afforded. Although the tumour was not always found by the surgeon, the local diagnosis was confirmed in every case with the exception of one, in which the growth proved to be in the neighbourhood of the third ventricle and not, as expected, in the frontal lobe. The diagnostic conclusions were satisfactory but the operative results very disappointing. Only one case could be regarded as a cure ; in five there was definite improvement, in five a tumour cyst was evacuated or a tumour partially removed, and seven patients died as an immediate sequel to the operation. Oppenheim was of opinion that only 3 to 4 per cent. of brain tumours were favourable for removal, and that the operative outlook in subtentorial tumours was particularly unfavourable.

When, thirty-five years ago, I was a house-physician at the National Hospital, the diagnosis in cases of intracranial tumour had reached a high degree of excellence. The surgical side of the picture is, on the other hand, a gruesome one. Removal of a tumour and recovery of the patient was in those days a rare event and the operative mortality was very high. Operation, it is to be remembered, was often not undertaken until such time as the general pressure symptoms were pronounced, the headache unbearable, and the swelling of the optic disks such that rapid failure of vision was inevitable unless the intracranial pressure was relieved. When, in such circumstances, the surgeon removed the bone he met with a tense, bulging dura through which, when incised, the adjacent portion of brain protruded, and his manipulations were in consequence greatly handicapped. Though some of these patients, in whom a tumour was exposed or a palliative decompression carried out, lived for a year or more, their headache relieved and their sight preserved, one sometimes wondered whether death on the operating table would not have been a preferable ending.

Progress up to 1910

The first decade of the present century witnessed, I think I am right in saying, a remarkable expansion of the neurological horizon. Whereas the attention of the clinicians and neuropathologists had up to that time been largely focused upon the relationship between the symptoms and signs presented by the patient and the pathological appearances met with during life, and the differentiation of tracts of fibres connecting different parts of the nervous system with one another and with the periphery, new viewpoints were now emerging—the day of pathological anatomy was passing. The representation of function in the cortex continued, however, to engage the research workers, and in 1901 Sherrington and Leyton published their elaborate experimental observations upon the cortex of the higher apes. Studies upon the architectural cytology of the cortex by the Vogts (1902), Brodman (1903), and A. W. Campbell (1905) approached the same problem from another viewpoint. And here I would especially refer to the magnificent monograph in which Campbell embodied his personal researches and so admirably collected the pertinent data bearing upon the problem of cerebral localization, from the experimental, pathological, and clinical aspects. Increasing interest was now being taken in the pathological and diagnostic information which was to be derived from the examination of the cerebro-spinal fluid. In 1905 the *Spirochaeta pallida* was discovered, and the introduction of the Wassermann test in the following year opened up new lines of approach. With the appearance in 1905 of Sherrington's great work, *The Integrative Action of the Nervous System*, there dawned what may well be described as a new era, for from this time onwards the neurologist began to think more and more in physiological rather than in strictly anatomical terms.

Following upon Babinski's observations on the diagnostic significance of the plantar reflex in disease (1898), the clinicians interested themselves *inter alia* in the precise assessment of other reflexes and physical signs by the same

method of approach, with the result that much valuable diagnostic information was thereby obtained. All these advances served to promote diagnosis in cases of intracranial tumour, and the literature of this decade is rich in this connexion. To two contributions, coming from the National Hospital, I would particularly refer—James Collier's paper on "The False Localizing Symptoms of Intracranial Tumour" (1904) served to emphasize the importance of early signs and symptoms in regional diagnosis; and Gordon Holmes and T. Grainger Stewart, in their paper dealing with "Symptomatology of Cerebellar Tumours" (1904), indicated clearly for the first time the features which distinguished intra- from extracerebellar growths. Harvey Cushing's monographs upon "Diseases of the Pituitary Gland" (1912) and upon "Acoustic Tumours" (1917), were most valuable contributions to our knowledge of these particular disorders.

Surgery still lagged behind, but Cushing's results recorded in his Mitchell Banks Lecture of 1910 were encouraging, for they demonstated the improvement that might be expected from advances in surgical technique. During the preceding ten months he reported that he had operated upon sixty-four cases of brain tumour. In twenty-three of these a solid tumour was removed or a cyst evacuated, and while six of these patients died very soon after, and as a sequel to, the operation, sixteen had recovered with more or less complete restoration of function, which he stated would probably in most be permanent. In forty-one a palliative operation was carried out: five of these patients died as an immediate consequence of the operation; fifteen had lived for various periods, some with considerable, others with little, improvement, while twenty-one were still living with symptoms in complete abeyance, and most of them had been able to resume work. These promising results were attributed to various factors. The fatal issue in several of the eight cases in which death had been directly attributable to the operation had, it was believed, been undoubtedly due to drawing off cerebro-spinal fluid by lumbar puncture to relieve the increased intracranial tension. Consequently, in all operations upon the posterior fossa a wide lateral decompression with removal of the posterior part of the foramen magnum was advised, for in this way the dura could be opened below the cerebellum and the cerebro-spinal fluid allowed to escape at the earliest possible moment. Finally, Cushing concluded:

"Earlier diagnosis and more prompt interference, a wider experience in overcoming the technical difficulties of these cases, coupled with the courage to work slowly and painstakingly—these things will lead to increasingly better results in this responsible work, the success of which depends so greatly upon detail, patience and the expenditure of time."

A discussion upon the treatment of tumours of the brain and the indications for operation at the meeting of the International Congress of Medicine held in London in 1913, which was opened by Bruns of Hanover and Howard Tooth, in the course of which the latter gave an elaborate and valuable analysis of the cases of brain tumour operated upon at the National Hospital during the preceding ten years, added little that was new. Victor Horsley, who spoke among others, urged that these cases should be operated upon before general pressure symptoms developed.

Recent Advances and Modern Diagnostic Aids

Since the great war there have been notable advances in various directions. Our knowledge of the histology and relative malignancy of brain tumours has made very definite progress; radiological developments of the greatest value in diagnosis have been introduced, and surgical technique has made rapid strides.

Recent histological observations have demonstrated that the most common tumours of the brain to which the term "gliomata" is generally applied may be subdivided into quite a number of groups according to the predominant type of cell of which they are composed, and Bailey has constructed an elaborate classification on this basis (1926). As many as 699 gliomata were analysed from Cushing's clinic and classified in accordance with their histological characteristics and in relation to the expectancy of life in the various types. The survival period in the astrocytomata (which constituted 37 per cent.) was seventy-six months or more, in the glioblastomata (30.2 per cent.) it was twelve months, and in the medulloblastomata (12.6 per cent.) fifteen months. Important prognostic information can thus be obtained when the tumour is exposed by the surgeon at operation and histologically examined.

The elaboration of radiological technique and the application of radiological procedures have during the past fifteen years done much to facilitate diagnosis. Stereoscopic photographs of the head are nowadays carried out as a matter of routine in every case of suspected intracranial tumour. Although it is only in exceptional instances, when calcification happens to be present, that the tumour itself throws a direct shadow, secondary changes in the bones often afford valuable diagnostic information. The digital impressions formed by the cerebral convolutions may be unduly pronounced when there is a general increase of the intracranial pressure; it is to be remembered, however, that a similar appearance is observed in children and sometimes in radiograms of the normal adult head. Rarefaction and erosion of the dorsum sellae is a common accompaniment, and when present affords definite evidence of increased intracranial pressure. Then again, changes in the bone, a direct consequence of the local pressure of the tumour, may be met with. Thus enlargement of the sella turcica is seen in pituitary and in some suprapituitary tumours, and enlargement of the corresponding internal auditory meatus may be observed in some cases in which a tumour arises from the eighth nerve. Meningiomata, too, may be associated with hypertrophy or absorption of bone, or with enlargement of the channels of the diploic veins or of the meningeal arteries in their immediate neighbourhood. Lateral displacement of the pineal body, which is calcified and consequently visible in many healthy individuals, may indicate the side of the tumour when this is uncertain.

Ventriculography—the radiography of the head after injection of air into the ventricles—a method introduced by Dandy in 1920, is now extensively used, and although not altogether free from danger is often of the greatest value in the information it affords as to the site and size of the tumour. Dandy's recent monograph upon *Benign Tumours in the Third Ventricle* (1934) affords a striking illustration of the diagnostic value of ventriculography in some types of brain tumour. He writes as follows:

"A series of twenty-one apparently benign, removable tumours arising within the third ventricle are reported. All have been disclosed at operation and removed. From the literature, forty-seven tumours of similar character have been assembled; all of these are post-mortem findings, none have been correctly diagnosed during life. . . . Tumours of the third ventricle are easily, safely, and unequivocally diagnosed and localized by ventriculography. . . . In the past two and a half years, fourteen of these tumours have been removed with a mortality of 14.3 per cent. Except for occasional minor effects, these patients make almost complete recovery of all functions."

The equally striking results which Dandy has obtained in benign tumours of the lateral ventricles are reported in a second monograph published a few months ago.

Encephalography is a procedure in which air is injected by the more convenient lumbar subarachnoid route. This method has been less extensively employed on the grounds that the air does not enter the ventricular system so satisfactorily, and that the attendant risk is greater, but it may be most informative and is practically free from danger if the correct technique is utilized. It should not be attempted if the intracranial pressure is increased.

Arterial encephalography—radiography of the cerebral arteries after the injection of thorotrast into the internal carotid in the neck—was introduced in 1931 by Moniz, who affirms that the abnormalities in the course and distribution of the arteries so demonstrated afford as useful information as does ventriculography, and that the procedure is quite free from risk.

The Present Position

A comparison of the operative results of to-day with those of the past necessitates a consideration of statistical data ; and here we owe a special debt of gratitude to Harvey Cushing, the pioneer of the surgery of brain tumour, who has from time to time during the past three decades published his operative results. In his communication at the International Neurological Congress at Berne in 1931, entitled " The Surgical-Mortality Percentages pertaining to a Series of Two Thousand Verified Intracranial Tumours," Cushing analyses his unique experience. His figures are the more impressive since every death in hospital from any cause whatsoever, no matter how long the interval after operation, is regarded as a post-operative fatality. The facts, as the following table shows, are very striking.

Comparison of Operative Mortality Percentages for Verified Tumours of Four Major Groups Divided in Three Periods

	Hopkins Series to 1912	Brigham Series to 1929	July, 1928, to July, 1931
	per cent.	per cent.	per cent.
Gliomas (varia)	30.9	17.8	11.0
Pituitary adenomas ...	13.5	5.3	5.7
Meningiomas	21.0	10.3	7.7
Acoustic tumours ...	25.0	11.5	4.4

Cushing points out that the improvement in the results is not due to a selection of relatively favourable lesions, for " the proportion of patients admitted as ' forlorn hopes ' in the terminable stages of their malady, often after ill-judged procedures at the hands of surgeons with little or no neuro-surgical training, is as large as ever it was." The principal steps to which the more favourable results are to be attributed he enumerates chronologically as follows: (1) the generally accepted methods of decompression to relieve tension ; (2) such irreproachable wound-healing that secondary infections are practically unknown ; (3) the separate closure of the galea by buried fine black silk sutures, which has caused the once dreaded fungus cerebri to be well-nigh forgotten ; (4) the introduction by de Martel, in place of ether inhalation, of local anaesthesia, now supplemented, when necessary, by the rectal administration of tribromethanol ; (5) the more precise tumour localization which in obscure cases Dandy's ventriculography permits us to make ; (6) the use of a motor-driven suction apparatus as an indispensable adjunct to every operation ; and (7) the successive improvements in methods of haemostasis which since 1927 have been most advantageously supplemented by the introduction of electro-surgical devices. But the operation, he adds, is by no means the whole story. After-care is equally important, for unsuspected complications may arise. Patients are not removed from the operating suite until the danger of a post-operative clot has passed. Many lives, too, he states, have undoubtedly been saved by the provision of a highly trained nurse, who may be expected to appreciate " the significance of symptoms which indicate that something is wrong with a patient recently operated upon for a brain tumour ; and a few hours' delay due to the misinterpretation or neglect of a warning signal may mean the difference between a fatality and a recovery."

The operative risks in cases of intracranial tumour have been very materially reduced, and successful removal is now a commonplace. Surgical technique has indeed made great progress, and yet Cushing writes : " In another thirty years our present operative procedures will doubtless appear as crude to our successors as do those of thirty years ago to us." But while the operative results in the case of the extracerebral and encapsuled growths are so much more satisfactory, the same cannot be said of the infiltrating tumours. Some form of treatment is called for which will inhibit the reproduction of the neoplastic tissue and leave unscathed the functional elements of the nervous system. Deep *x*-ray therapy, which has been extensively employed of recent years, has an undoubtedly beneficial effect upon some forms of tumour, and notably upon the pituitary adenomata and some of the gliomata. This form of treatment is, however, still in the experimental stage, and time must elapse to permit of definite conclusions as to its efficacy and limitations. It is, too, a dangerous procedure, and should only be applied by those who are fully conversant with the method and its risks.

THE TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA*

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The successful treatment of chronic middle-ear suppuration remains one of our greatest problems. The reason is not far to seek when we consider the tortuous anatomy of the middle-ear cleft ; our frequent inability by clinical methods to define accurately the nature and extent of the pathological lesion ; the difficulty often confronting us when we attempt to eradicate the disease by surgical or other means of conserving the function of hearing ; and the risks that may befall the patient. The latter concerns not only his hearing, but even his life if we delay too long a surgical intervention for which the necessity is not always plainly indicated.

Further, we may still have to encounter the indifference of a public that continues to regard a chronically discharging ear as merely a tiresome, if at times a somewhat distressing, complaint, and do not rightly appraise its grave potentialities as we see them—namely, at best a permanent impairment of hearing (and therefore a loss of both individual and national efficiency), or, maybe, the ever-impending disaster of an intracranial affection. For the latter reasons alone, apart from any feelings of pride in our specialty, it behoves us, in an age when such great scientific progress has been made in other fields of medicine and surgery, to devote our fullest energies towards a solution of this important problem.

* Read in opening a discussion in the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Melbourne, 1935.

Prophylaxis

It will be our first duty continually to emphasize the methods of prevention of chronic middle-ear suppuration. These consist in the already well-established rules of guidance in diminishing the possibilities of aural infection, its proper care and treatment in the acute stage—especially when complicating the exanthematous fevers—and, in those cases tending to become chronic, searching for and dealing with a cause in the nose or nasopharynx, or possibly in the mastoid itself. These methods are too well known to be described further, and much has already been accomplished in this respect by the general practitioner, public bodies, and hospital institutions.

What is not yet generally known and appreciated, however, is the importance of always bearing in mind the possibility of a latent mastoiditis, especially in the case of young children. This, if not recognized and dealt with surgically, may prove a potent causative element in the establishment of a chronic suppuration. It has surely been the experience of many to have opened up a mastoid cortex and found a large area of infection in the cells and antrum, when clinically there has been very little evidence of this. In such cases efficient radiograms are, in my opinion, of great value, and may assist in making up our minds to intervene in the case of the acute suppurating ear that is tending to become chronic. In fact, one may stress this point further, and say that any case of acute otitis media that does not resolve, under appropriate treatment, after the normal period of ten to fourteen days—other exciting causes in the nose and nasopharynx being absent—should be viewed with suspicion and considered as a possible case of latent mastoiditis. If operation is decided upon the simple form of mastoidectomy is then indicated, and proves no very serious matter when, as I shall describe later, modern methods of surgical technique and after-treatment are employed.

Aim of Treatment

Obviously the aim of treatment is to get rid of the infective focus that is keeping up the chronic inflammatory discharge, and at the same time to attempt to preserve whatever useful degree of hearing remains. Unfortunately, these two objects tend to conflict, especially when we have to employ surgical methods of treatment. Hence comes our desire to employ conservative methods as much as possible, and our reluctance to undertake operative measures, except in cases of emergency when grave complications threaten, or, as a last resort, when conservative methods have plainly failed. The former ideal—namely, to cure all cases by conservative medical measures—has made us try a great variety of direct methods of attack, mostly via the external auditory meatus. These are legion, and range from simple cleansing solutions, medicated drops, and solutions with varying degrees of disinfecting, digesting, penetrating, and bactericidal power, and powders with similar properties, to electrical methods, such as that of zinc ionization, electrolysis, diathermy, light therapy, and even the application of *x* rays. All of us have had our successes in this respect, and our zeal to persist in this line of treatment is commendable ; moreover, it is doubtless responsible for the enthusiasm with which fresh products are being continually brought on to the market and have their vogue—at least for a time.

However, in a large number of cases we are reluctantly forced to admit failure. The discharge continues, or at best is limited for a time and then recurs. We say we fail because the area of disease is inaccessible to our cleansing lotions, medicated fluids, etc. Then begin a series of minor surgical attacks upon the area of disease, consisting of incisions of the drum membrane, removal of polypi, curetting of granulations, and even of the underlying bony infection and the removal of ossicles. By such procedures we admit that not only are the areas of disease made more accessible to our applications, but better drainage of the discharge is thereby established. A further percentage of cures is thus effected, but failures still remain, and in these we continue to say that the disease cannot properly be reached. We are now confronted with the choice of letting well alone, or of undertaking a major surgical operation upon the mastoid bone itself. We have, moreover, to decide whether a simple mastoidectomy will suffice, or whether we should extend this to deal with the contents in part or whole of the middle-ear cavity, and thus perform the conservative radical or the complete radical mastoid operation.

Our indications for operation will be partly gathered from a careful study of the general symptoms of the disease, the clinical appearance of the middle ear, as viewed through the external auditory meatus, the chronicity and effects of previous forms of conservative medical treatment, and, lastly, and by no means least important, the degree of useful hearing that remains. In some cases our indications for opening up the mastoid bone will be defined clearly, but others will occur in which it will not always be possible definitely to judge the efficacy of any particular form of operation. Our clinical methods of examination do not yet allow of our gauging correctly the exact nature and extent of a pathological process in the middle-ear cleft, and even skiagrams give, in most cases, but an imperfect shadow of the reality. Hence I maintain that only upon opening up the mastoid antrum, removing the posterior bony wall of the meatus, the bridge of bone over the aditus, and part of the outer attic wall can we obtain a real picture of the extent of the lesion present. This procedure will serve, not only when we have clear indications for operation, but also in those cases where we have decided upon operation but are not yet certain in our judgement from the clinical evidence available as to what type of mastoid operation we should perform.

In view of the great importance of preserving whatever useful hearing remains, let me urge the following dictum—namely, the more radical the method of surgical procedure on the ear that tends to destroy the usefulness of the hearing function the more precise should be its indications.

Conservative Medical Methods of Treatment

Our policy of treating chronic suppuration by the most conservative measures has led to the employment of a vast number of different medicaments, to which I have already referred and which are said to owe their success to their penetrating, disinfecting, or bactericidal power. It is difficult to assess the real value of any one of them, for we are as yet unable to prove how far they penetrate or how potent they are in antiseptic or bactericidal properties when used in concentrations which are themselves non-irritating to the living tissues ; for it is upon the vitality of the latter that we rely for repair of the lesion. Hence I am sceptical enough to disbelieve in their curative value *per se*, but inclined rather to consider them as useful factors in providing the best possible conditions for promoting drainage and, to some extent, aeration of the affected area of the lesion.

In a word, until we can correctly standardize their properties and actions we must look upon them as merely cleansing and mildly disinfectant methods of treatment, and give to Nature herself the credit of effecting a cure, owing to adequate drainage of toxic secretions and the healing power of the tissues. In so far as Nature fails in this latter respect, and there is mechanical obstruction to efficient drainage, so will the chronicity of the affection prevail. However, to the advocate of this or that method of conservative medical treatment his want of success in any given case is rather attributed to the inaccessibility of

the affected area to his chosen medicament. The fact remains that in a total number of cases of chronic suppuration treated carefully by one or other of these methods it can fairly be claimed that a percentage of 70 to 75 of cases result in cure.

Our clinical study of these successful cases has taught us the following facts. The lesion is generally confined to the atrium of the middle ear. The perforation is in the majority of cases central and not marginal, and may be small or large. Recurrence of suppuration is apt to occur following a cold or after bathing, and in the presence of enlarged tonsils and adenoids or disease of the nasal accessory sinuses. Hence the importance of dealing with these contributory factors. Small perforations may close spontaneously, but if they persist attempts should be made to close them by means of trichloracetic acid, chromic acid, or silver nitrate carefully applied to their margins. Large perforations cannot be closed in this manner, but some may do so spontaneously by forming adhesions to the inner wall of the tympanum, while the remainder may persist indefinitely, but give rise to no more than a thin, scanty mucous secretion. This last class may be considered "safe," and any possible advantage that may be gained in securing a dry ear by subjecting them to the radical mastoid operation will doubtless be equally offset by the resultant depreciation of hearing.

It may be fairly asked how long one should persist in medical forms of treatment before deciding upon some surgical procedure. It is admittedly a difficult question to answer, and especially in those long-standing adult cases where the disease through time may have become firmly established, and, moreover, may have affected the bony as well as the membranous structures. Which of us, however, has not seen, even in these cases, a miraculous cure result after a process of careful cleansing and the application of one's own favourite disinfectant? Also, this teaches us not to rest content with any one particular form of medical treatment, but to ring the changes on them just as we are wont to do in most kinds of empirical treatment. Since most of us, however, have predilections for some particular form of treatment I shall now state my own, confessing at the same time my readiness to change over to others when I consider in any particular case my own has become ineffective.

Author's Method

For cleansing purposes I prefer the wet method to the dry. It is a simple method, which has withstood the test of time, and consists in the instillation of hydrogen peroxide drops into the meatus, followed by syringing with boric acid solution. I cannot agree with those who say that syringing is a dangerous process. In the whole of my experience I have never seen any harm result, provided it is carried out with reasonable care and with due regard to the comfort of the patient. On the contrary, I know of no more effective method of cleansing a meatus, and none which causes less anxiety and discomfort to the patient, especially the infant and small child. Subsequently, as a disinfectant, I recommend the instillation of guttae s.v.r. (70 per cent.) or, upon occasions—especially when there are granulations present on the inner tympanic wall—the application of pulv. a.b. + 1 per cent. iodine. In adults I am prepared to continue this form of medical treatment, no urgent reasons for operation supervening, for a period of two to three months before advising on the next stage of procedure, which by that time will surely have been suggested by the endoscopic appearances of the lesion. In children, however, the problem is not quite the same, since the preservation of their hearing throughout their early educative life is most important, and places an added responsibility upon us. If there is not a quick response to treatment, say in a period of one to two months, and this of course includes a diminution of, and alteration in, the character of the discharge, and, better still, after a trial of Friel's method of zinc ionization, and any exciting causes in the nose and nasopharynx are proved absent, resort should then be had to some form of surgical treatment.

Minor Operative Measures

We estimate that 25 to 30 per cent. of all cases require some form of operative treatment. In accordance with our stated policy of proceeding on conservative lines we first employ minor operative methods, in the hope of promoting better drainage and allowing accessibility of antiseptics to the diseased areas. These minor surgical interventions may be briefly stated. They consist in incision of the tympanic membrane, when the existing perforation is small and the membrane reddened, thus indicating retention of pus; the removal of polypi or granulations; very occasionally, the curetting of a fistulous tract into the meatus; or even, in some cases, ossiculectomy.

The results of such treatment are, in our experience, on the whole unsatisfactory, and in the best conditions can be stated to effect a cure in about 5 per cent. of all such cases. Granulations, except those originating from the mouth of a fistulous tract into the meatus, are difficult to remove safely, polypi are more often than not prone to recur, and the removal of necrosed ossicles via the meatus does not usually get rid of a deeper-seated lesion such as the necrosed ossicles signify. However, such operations may be considered justifiable, first, in the hope that they will bring about the occasional cure, and, secondly, as an expedient when other more radical measures of operation are refused.

Major Operative Measures

This part of our subject is worthy of the most serious consideration. We have to determine the correct procedure in the 20 per cent. of all cases that require an operation on the mastoid bone. Moreover, we have to decide on the type of operation that will best suit the individual case and that will be neither too limited to deal adequately with the pathological site of the lesion nor too extensive to effect this and at the same time not diminish unduly a useful function of hearing. If the hearing is at all useful attempts should be made to preserve it. This applies even in some cases of cholesteatoma. The preservation of the hearing function demands as little interference as possible with the membranous meatus and the contents of the middle ear. The simple or Schwartze mastoid operation fulfils best this latter purpose, but its indications are unfortunately limited, and it will serve only in those cases of chronic suppuration where the attic, and particularly its outer bony wall, is unaffected.

To deal adequately with the latter type of case the simple mastoidectomy must be further extended, to expose the aditus and attic regions. This operation is called the conservative radical, antro-epitympanic, or transantral attico-tympanotomy. By it most of the contents of the middle-ear cavity can be exposed to the direct view, and lesions such as diseased ossicles, granulations, and necrosed bone removed. Proceeding further one may perform the radical mastoid operation by removing the whole of the outer attic wall, the remains of the tympanic membrane and the ossicles, and the remaining contents of the middle-ear cavity, respecting only the mucous lining of the inner tympanic wall, and hoping later on for epidermization of the resulting cavity. Thus we see that where the indications are not precise we can proceed conservatively, extending our operation further and further in successive steps if we consider the necessity arises as we view the extent of the lesion.

Indications for Operation

Speaking generally, however, we can often gain a fairly accurate knowledge from our clinical investigations of what type of operation will be required. These indications may now be briefly reviewed.

1. *General Indications.*—Operation upon the mastoid is indicated in all cases of chronic suppuration showing evidence of threatened intracranial complication ; in those subject to acute exacerbations, complicated by facial paralysis of recent onset, or with cholesteatomatous involvement ; in those which show clinically definite sagging of the post-superior meatal wall and evidence of underlying osteitis ; and in those which have resisted conservative medical treatment over a period of two to three months in adults and in children after one to two months, where any exciting cause in the nose or nasopharynx has been excluded.

Exceptions to the latter group are those in which the lesion is confined only to the atrium of the middle ear, as evidenced by the fact that the discharge is seldom more than muco-purulent, and, after the meatus is cleared, no pus can be seen on aspiration coming from the regions of the attic or antrum. These are the so-called "safe" conditions, already mentioned, with, usually, large central tympanic perforations and with hearing which is generally useful and would probably be further considerably diminished by the radical operation.

In this first group of cases it need not be necessary at all times to perform the complete radical operation, though obviously it will be the correct procedure in cases of threatened meningeal infection originating through a diseased labyrinth, in cases of gross destruction of the middle-ear contents by cholesteatoma, or in those cases of petrositis in which the discharging peri-labyrinthine tract opens into the tympanus.

2. *Early Chronic Suppuration.*—The simple (or Schwartze) operation is particularly indicated in most cases of early chronic suppuration that have resisted ordinary conservative methods of treatment, especially in children, and when, as previously stated, a latent mastoiditis has been diagnosed. Also, it will probably suffice in those cases where the tympanic membrane—especially in its superior part—does not appear unduly reddened, but where pus can be aspirated into the cleansed meatus from the antral region, the perforation being situated in the posterior portion of the tympanic membrane, even though it be central or marginal. This operation has become so classical that it would be superfluous to describe it in detail. Let me mention, however, one or two points in the technique, and also particularly as regards the after-treatment, which in my own practice I consider of the greatest importance.

In the first place, with regard to the incision, this should be made not in the posterior auricular sulcus, as at one time advocated, but at some distance behind it, in order to allow of a curved skin-flap being raised from the underlying mastoid process, which alone it is sufficient to expose. During the healing stage this tends to avoid the possibility of extensive infection of the soft tissues or of unsightly depressions and fistulae taking place. Secondly, all diseased cells must be thoroughly opened up, especially the apical cell of the mastoid process, when the bone is of the large cellular or cancellous type. Thirdly, no plastic should be done on the meatus, and it is preferable to close the wound completely, except for the smallest of tube drainage.

A method of posterior drainage which I have adopted during the past two years in a very large number of cases, and which has given complete satisfaction as regards both the resultant healing and the minimum of discomfort to the patient (especially the infant and small child), is that of Carrel, with a solution of eusol. However, instead of cleansing the wound cavity with a continuous irrigation of eusol, it has been found more practicable and equally efficient to accomplish this by means of small injections, about 5 c.cm. at a time, made with a Record syringe through the fine tube, and repeated every one to two hours during the waking periods of the patient. Since dressings need not be removed, except to inspect the wound occasionally, one can readily understand the ease of application of this method of after-treatment and its almost complete absence of painfulness.

3. *Attic Disease.*—When the disease is located in the attic region, as evidenced by the situation of a perforation in Shrapnell's membrane, or some contiguous site in the membrana tensa, accompanied or not by a sentinel polypus, redness of the membrane in this region and the aspiration of pus from above, it is generally indicated that the attic region will have to be exposed during the mastoid operation. In such cases, especially when most of the drum membrane remains intact, the degree of useful hearing is very often found to be remarkably good. Hence we must employ an operation which, whilst dealing with the focus of suppuration, will interfere as little as possible with this hearing function.

We make use, therefore, of a type of the conservative radical operation that was first practised by Heath, and which, now modified, gives, in experienced hands, most satisfactory results. The points in the technique to which I should like to draw attention are these. A skin-flap should be turned forwards after making a curved incision extending from the upper attachment of the auricle around the hair line and thence forwards towards the tip of the mastoid process. After completing the simple mastoidectomy the next step consists in carefully separating from the bony meatus the post-superior wall of the membranous canal right down to the annulus tympanicus, where it here finds attachment to the drum membrane. The posterior bony ridge of the meatus, the outer wall of the aditus, and most of the outer attic wall are next removed. Then, by gently pushing forward the membranous meatus and the portion of drum membrane continuous and detached with it, one can now view the contents of the attic and even of the upper portion of the atrium. The body of the incus and the head of the malleus can be readily seen. At this stage it is essential to the success of the operation to make use of some form of magnifying lens or loupe, preferably of a binocular pattern, in order to assist in the location and removal of diseased membrane, ossicles, or bone.

If it is found necessary to remove a necrosed incus it is advisable to remove also the head of the malleus, as better drainage is thereby ensured. It must be remembered, however, that the removal of the incus unnecessarily is not to be advised if the hearing function before operation approximates to the normal, for it will certainly entail a loss of this acuity. During the first week of the after-treatment the meatus should be firmly packed with narrow ribbon gauze, the aim being to assist the drum membrane where it has been detached from its bony support in forming a fresh attachment to the inner tympanic wall, thus creating once more a closed air space communicating only with the Eustachian tube.

4. *Persistent Suppuration.*—There remain after operation a fair number of cases that continue to suppurate. They may result from operation upon the acute mastoid, and may present fistulae, either posteriorly or into the meatus, stenosis of the meatus, or simply unhealed perforations with or without granulations and polypi. Others result from an incompletely epidermized radical mastoid cavity, and in the latter particularly when the tympanic orifice of the Eustachian tube remains patent. The number of such cases will, in my opinion, be considerably diminished if attention is paid to the points I have advocated—namely, a curved skin-flap incision, as little interference as possible with the membranous meatus (and this applies equally in the case of the complete radical operation), and a minimum of interference with the wound during the healing stages. If called upon to operate again

in some of these cases only then may it become necessary for the surgeon to employ skin or muscle grafts, or some plastic form of operation on the meatus.

Conclusion

I have attempted in this paper to give a résumé of our present knowledge of the treatment of chronic middle-ear suppuration. It will be seen that we cannot claim to have made any great progress during the past decade, particularly as regards conservative measures. What, then, of the future? Upon what lines can we profitably advance, either in our medical or surgical methods? In prophylaxis there must always remain considerable scope for improvement, and much work is being done in this respect in the early observation and treatment of school children. The employment of more effective antiseptic and bactericidal solutions and powders demands further considerable research into their properties in respect to their effect upon bacteria as well as on the living tissue cell. The same applies to ionization and the various other electrical methods.

As regards surgery we can surely devise a better technique in dealing with the problem. If, as I firmly believe, the maintenance of useful hearing depends in a large number of these cases upon the continued mobility of the oval and round windows, I can foresee our efforts in the future being directed towards this end, and, if fixation has occurred, even to the repair of this mechanical fault, originating surgical methods that will restore the function of the liquid within the labyrinth, thus allowing it to transmit once again the necessary correct pressure variations. Perhaps our ideal will be reached when we can graft on a new tympanic membrane, and fashion a new mobile window to replace the one that has become fixed by some adhesive or sclerotic process.

THE HYPERTENSIVE CEREBRAL ATTACK

BY

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Until recently cerebral symptoms, such as convulsions and coma, occurring in a patient who showed raised blood pressure and albuminuria were attributed to uraemia. Volhard,[7] however, pointed out that such cerebral symptoms could occur in the absence of renal insufficiency, and he used the term "pseudo-uraemia" to distinguish this condition from true uraemia. He divided pseudo-uraemia into acute and chronic forms. In the acute form there is raised intracranial pressure, and, clinically, headache, vomiting, and slowing of the pulse. These symptoms are produced by cerebral oedema, the result of an acute disturbance of the circulation in the brain. In chronic pseudo-uraemia the principal factor in the production of the cerebral symptoms is angiospasm. He believes that transient focal symptoms—such as weakness in a limb, aphasia, disturbance of vision—are caused by spasm of the corresponding cerebral vessels. In both forms a raised blood pressure is the determining factor. Oppenheimer and Fishberg[4] emphasized the fact that cerebral symptoms in hypertension are generally preceded by an additional rise in blood pressure above the previous level. They give the name "hypertensive encephalopathy" to the cerebral symptoms occurring in hypertensive states. They believed that these symptoms are caused by vasoconstriction of the cerebral vessels.

It was previously held by the majority of physiologists that there was no nervous control of the cerebral blood vessels. However, the brilliant work of Forbes and Wolff[1] and their collaborators has definitely established the existence of a nervous control of the pial vessels in the cat. A summary of their experiments must suffice.

Stimulation of the cervical sympathetic in the neck by a faradic current was followed by constriction of the pial arteries. Stimulation of the vagus resulted in a dilatation of the pial arteries. They also found that the calibre of the pial vessels could be altered by changes in the chemical composition of the blood. Vaso-constriction resulted from: (*a*) intravenous injections of hypertonic salines; (*b*) a decrease in the carbon dioxide content, or an increase in the oxygen content of the blood; and (*c*) intravenous injections of pituitrin. Dilatation of these vessels followed: (1) an increase in the carbon dioxide content of the blood, or a state of anorexia; (2) a condition of acidosis; and (3) inhalation of amyl nitrite (Wolff and Forbes,[10] Wolff,[9] Wolff and Lennox[8]).

Histologists such as Stöhr,[6] Hassin,[2] and Penfield[3] have also provided further evidence of a true nervous control of the pial vessels. They have demonstrated the existence of nerve endings in all vessels of the pia and choroid plexus. Nerve fibres have also been found in the walls of vessels entering the brain itself. These experiments and histological researches prove beyond doubt the existence of a nervous control of the superficial blood vessels of the brain, and, in all probability, of those entering the brain itself. From this it may be assumed that the blood supply of the brain is dependent on the state of tonus in the cerebral arteries and arterioles, which in its turn is under the influence of the sympathetic and autonomic nervous system. The cerebral vessels will respond to any disturbance of the normal balance existing between these two systems, whether this be temporary or permanent, in the same manner as the blood vessels in other parts of the body, and also to changes in the chemical composition of the blood. These facts would readily explain such conditions as migraine, epilepsy, and certain of the cerebral symptoms of arterial hypertension.

A Case of Pure Uraemia

Before describing the cerebral symptoms as met with in cases of hypertension a case of pure uraemia will be described, as it affords interesting points of contrast.

A. P., a male aged 36, was admitted to the neurological ward, Middlesex Hospital, on July 26th, 1934. For a few months previously he had suffered from headaches. However, he continued at work. On July 24th, 1934, he suddenly lost consciousness for a few minutes; the tongue was bitten, and he was incontinent. The past history was unimportant, except that in 1907 he was run over by a hansom cab and his "kidneys were damaged."

The patient had two generalized epileptiform attacks on the day of admission, one at 3 p.m. and one at 10 p.m. Between these attacks he was conscious but drowsy. There was marked pallor of the face; speech was dysarthric. Respirations twelve per minute; definite air-hunger. Fundi normal. No abnormal signs in the central nervous system. No muscular twitchings observed. Chvostek's sign negative. Heart: apex beat not felt, but no obvious enlargement; no added sounds. Pulse regular. Blood pressure 120/80. Tongue markedly furred. Liver and spleen not enlarged. Bilateral irregular renal tumours felt. Urine: slight trace of blood; albumin, 0.07 gram per 100 c.cm.; urea, 0.57 gram per 100 c.cm. Frequent blood-pressure readings on the day of admission and the following few days showed figures ranging between 140/75 and 130/80. During the first three days the twenty-four-hourly output of urine varied between 49 and 57 ounces with an intake of between 62 and 87 ounces. The following blood analyses were made (figures represent milligrams per 100 c.cm.):

	Urea	Non-protein Nitrogen	Alkali Reserve c.cm. CO_2	Calcium
26/7/34	321	176	18	—
27/7/34	339	192	19	6
31/7/34	379	171	29	—
28/8/34	215	122	40	—
19/9/34	200	115	36	7.7
2/10/34	160	97	33	7.9

In the first forty-eight hours after admission there was no improvement. Five hundred c.cm. of 2 per cent. solution of sodium bircarbonate in saline was then given intravenously. Within twenty-four hours the patient seemed much better. Air-hunger was less marked, and he read a newspaper with interest. He continued to make slow progress, and gained one stone in weight whilst in hospital. He was seen at intervals during the next four months. He remained free from symptoms, and was most anxious to return to work. He died of uraemia in another hospital in February, 1935.

This example of polycystic disease of the kidneys presented, on admission, a picture of true uraemia. At no time was the blood pressure raised. The convulsions can be explained by an altered blood chemistry. The absence of any clinical evidence of tetany was surprising in view of the persistently low blood calcium figures. Temporary recovery in this case was scarcely expected in view of the marked degree of nitrogen retention, and it was undoubtedly helped by the use of intravenous sodium bicarbonate.

Before leaving this case emphasis must be laid on the fact that a number of those with true uraemia die without having had a fit.

The Hypertensive Cerebral Attack

When we come to consider those cases of hypertension which present cerebral symptoms—usually of sudden onset—and in which there is no evidence of nitrogen retention, we are confronted with a series of events ranging from severe headache to epileptiform convulsions and coma. An attempt has been made by the present writer to understand the pathogenesis of these symptoms. After studying a number of cases they were found to fall into one of two groups, depending on the presence or absence of cerebral oedema. Occasionally a case was met with which showed features appertaining to both groups. The term "hypertensive cerebral attack" is a simple one, and therefore has been adopted to describe these symptoms.[3]

With Signs of Cerebral Oedema

The patient is usually under the age of 40, and may be a child suffering from acute nephritis, or an adult with raised blood pressure, either primary in type or secondary to an old nephritis. Previous health has usually been good. Severe headache is the characteristic feature of these attacks ; it may be referred to the frontal or occipital regions, and is often accompanied by vomiting, cerebral in type. The headache may continue for several days or weeks. Drowsiness is usual, and may develop into a mild degree of coma. Epilepsy, generalized or Jacksonian, may occur at the onset, but is more rarely met with, when compared with the type of hypertensive cerebral attack later to be described. Ophthalmoscopic examination almost invariably shows evidence of a hypertensive retinitis. The earliest change is a constriction of the retinal arterioles, which varies from time to time. Within a few hours of the onset haemorrhage, exudate, and papilloedema may make their appearance. In rare cases, of which I have seen several examples, papilloedema may be the only obvious change on ophthalmoscopic examination, and this finding in conjunction with severe headache and vomiting may suggest a diagnosis of cerebral tumour.

The outstanding feature of these attacks is the rise in blood pressure. In young persons the diastolic pressure may reach a figure of 160 or higher. The cerebro-spinal fluid pressure is raised. A marked degree of papilloedema is always accompanied by a high cerebro-spinal fluid pressure reading. In acute nephritis the changes in the urine will be characteristic of that condition. In the remaining cases albuminuria is a constant finding, as well as casts and red cells, which indicate an ischaemic condition of the kidney. Blood nitrogen figures are within normal limits, unless uraemia is a complicating factor.

Without Signs of Cerebral Oedema

The patient is usually between the ages of 40 and 65, contrasting with the previous type, which occurs particularly in younger persons. Hypertension has been present for a number of years. Cerebral symptoms, such as headache, temporary attacks of aphasia, weakness in a limb, or even a hemiplegia, may have occurred previously. In other cases there is no warning of the attack ; in still others it is preceded by a severe headache or some minor angiospastic symptom such as aphasia. Two symptoms characterize this form—one is coma and the other convulsions ; in many cases these two symptoms are combined. The state of coma is usually preceded by severe headache ; the patient becomes drowsy, and then lapses into a state of unconsciousness, from which it is difficult to rouse him. This state may last for several days, during which the blood pressure is found to be exceedingly high. The plantar responses are, not uncommonly, bilaterally extensor. There may be retention of urine. In the first of these attacks recovery usually follows a fall in blood pressure.

In other cases there is no warning of the attack, but there is often severe headache. The patient suddenly becomes unconscious, and the various stages of an attack of epilepsy are passed through. In some cases consciousness returns in a few minutes ; in others, however, coma persists for one or more days, and during this time there may be further epileptiform attacks, but not infrequently the duration of the coma seems to be out of proportion to the number of fits. Instead of being generalized the epileptiform attack may take a local or Jacksonian form, in which case consciousness may be retained. Bilateral extensor responses are temporarily present immediately following this form of attack. On ophthalmoscopic examination papilloedema is absent, but the retinal arteries are constricted. On lumbar puncture the cerebro-spinal fluid is found to be under normal pressure. The most significant finding is a high blood pressure reading, which is not due to the actual epileptiform attack, as a reading during the actual state of coma will show. The urine may contain albumin in varying quantities. The blood urea and non-protein nitrogen figures are normal, provided uraemia is not a complicating factor. Consciousness is regained with a fall in blood pressure. As a rule no organic signs in the central nervous system remain. However, in other cases, hemiplegic signs of varying degree may persist.

These attacks of epilepsy may occur at intervals, and are sometimes regarded as cases of idiopathic or senile epilepsy. It is noteworthy that they seldom occur at night. Their appearance late in life, with a negative Wassermann reaction and the existence of a raised blood pressure between the attacks, proclaims their relationship to arterial hypertension.

T. E. R. B., a male aged 48, had suffered from attacks of migraine. He always had a nervous and quick temperament. His blood pressure was known to have been raised for nine years. Early in August, 1934, he was seized with a very intense headache and became drowsy. Systolic blood pressure was 240. A large quantity of albumin was found in his urine, of which the output was diminished. He remained in

a stuporose condition for about four days, and thereafter recovered partially. It was noticed, however, that his memory was now poor. On September 23rd he complained of a severe headache. This recurred on the following evening with increased severity, and was accompanied by repeated vomiting. At the same time he became drowsy.

When examined on September 26th he lay in a drowsy, stuporous condition; he could be roused with considerable difficulty, but relapsed quickly again into a semi-comatose condition. He did not reply to questions, and his attention was poor. The skin of the face was markedly pale and breathing was slightly increased in rate and shallow. Pulse rate was 100 per minute. The pupils were normal. Ophthalmoscopic examination showed no papilloedema and no retinitis, but there was a marked degree of retinal arteriosclerosis, with spasm of the arterioles. Power was very fair in all four limbs. Deep reflexes were much exaggerated, and both plantar responses were extensor. The apex beat was in the nipple line, and was diffuse and thrusting; there was a short systolic murmur at the apex, with a tendency to tick-tack rhythm; blood pressure 290/148. Skin was moist. No muscular twitchings were observed. Urine showed a trace of albumin. Blood urea was 31 mg. per 100 c.cm. Non-protein nitrogen was 29; alkali reserve 56 c.cm. CO_2 per cent. Lumbar puncture showed a normal pressure of cerebro-spinal fluid. Venesection was performed, and 1/2 grain erythrol tetranitrate was given at eight-hourly intervals. The patient's condition did not improve, and the systolic blood pressure fell, whilst the diastolic rose. Death took place on September 29th.

The cerebral attack at the beginning of August, and the final one which proved fatal, were both associated with very high blood-pressure readings. There was a marked degree of spasm of the retinal arteries, which pointed to a similar condition being present in the cerebral vessels. There was no evidence that the bilateral extensor responses were due to a gross lesion. Their presence at a time when the patient was able to be roused suggests that they were due to the effects of a widespread ischaemia. Death took place as the result of cardiac failure, doubtless brought on by ischaemia of the heart muscle, associated with a rising diastolic blood pressure, which finally reached the figure of 160.

An Illustrative Case

The following case is an example of hypertensive epilepsy.

G. W., a female aged 45, was admitted to the neurological ward of the Middlesex Hospital on December 20th, 1932, as she had lost consciousness in a bus on that date. She gave a history of severe periodic headaches commencing at the age of 30. These were referred to the frontal region and were throbbing in character. They were never preceded by any visual phenomena or accompanied by vomiting. In 1927, at the age of 39, she had her first attack of epilepsy, and since then she has had seven further attacks. The attack is always preceded by severe headache, frontal and occipital, which comes on suddenly. If she is able to lie down quietly in the dark no fit usually occurs, otherwise after the headache has lasted for about five minutes she suddenly loses consciousness. She has been told that she goes stiff, and then struggles in the attack. Occasionally she bites her tongue, and is incontinent during the attack. The period of unconsciousness has lasted as long as two hours. After the attack severe headache persists for a day. Occasionally she has difficulty in expressing herself for a short time after the attack, but has never noticed any weakness in the limbs. No history of nycturia was obtained. Her general health between the attacks is good. In 1928 she was admitted to the Middlesex Hospital, under the care of Dr. C. E. Lakin, following her second attack of epilepsy. The blood pressure during three weeks in hospital varied between 180/138 on admission and 150/95. Blood urea was 40 mg. per 100 c.cm.

On readmission on December 20th, 1932, she was conscious, but complained of headache. The fundi were normal, apart from a moderate degree of retinal arteriosclerosis. There were no abnormal signs in the central nervous system. There were signs of moderate hypertrophy of the left ventricle. Blood pressure was 230/140. The Wassermann reaction was negative in blood and cerebro-spinal fluid; the pressure of the latter was 120 mm. of water. The urine contained a trace of albumin, but no casts. Blood urea was 38, non-protein nitrogen 36 mg. per 100 c.cm. Within twenty-four hours her blood pressure fell to 200/120, and remained in that vicinity during her fortnight's stay in hospital. Since that date the patient has gained 3 stone in weight. She has had three further attacks, and has had to give her work up (she was a midwife) as the result of breathlessness.

This patient had her first fit at the age of 39. The occurrence of severe headache, recalling that of migraine, before each attack is of interest. Her blood pressure on each of the two occasions on which she was admitted to hospital following an attack was considerably raised, and fell rather more rapidly than could be accounted for by a day or two in bed. This suggests that the attacks of epilepsy were due to a sudden additional rise in blood pressure. There was no evidence of nitrogen retention on either occasion. A number of cases of epilepsy occurring for the first time in hypertensive patients over the age of 40 have been observed within a few hours of their admission to hospital. The blood pressure in such cases has always been much raised, and has subsequently fallen more rapidly than could be accounted for by a few hours' rest in bed. It is believed that in such patients a temporary further rise in blood pressure has precipitated the attack. The adjective "hypertensive" might be used in describing this form of epilepsy.

It is well recognized that epileptic attacks may occur in arteriosclerotic patients in whom the blood pressure is normal. In some of these cases the attacks follow a cerebral thrombosis. I have recently had under my care several of such cases in which the blood Wassermann and cerebro-spinal fluid were normal. Confusion may arise in this type of case, as headache may be present, and the differentiation from a cerebral tumour may be difficult, the question only being settled after some months of observation or by the occurrence of a sudden hemiplegia. Such attacks are almost certainly due to a localized disturbance of cerebral circulation, but independently of a rise in blood pressure.

Minor Angiospastic Cerebral Symptoms

Apart from these severe attacks certain further cerebral symptoms may occur in a patient suffering from arterial hypertension, and they are of interest, as they point clearly to the existence of spasm of cerebral vessels. These consist of attacks in which temporary paresis, aphasia, numbness, and disturbances of vision may be present. A feeling of numbness and tingling in the hand and around the mouth on the same side may be experienced, sometimes accompanied by a motor type of aphasia, if the vessel affected is in the left side of the brain. Such an attack may last for varying periods, from a few minutes up to forty-eight hours. This may be followed by a permanent paresis; in such cases vaso-constriction, presumably, is severe, and the resulting ischaemia produces permanent damage. Accompanying these cerebral attacks there may be evidence of peripheral vaso-constriction of the limbs, either as a dead or tingling feeling in the hands or feet, or of pain in one lower limb, of the type seen in intermittent claudication. Vision may be affected, independently of a retinitis, by spasm of a branch of the posterior cerebral artery; the loss of vision is usually temporary.

Aetiology

The factor common to both varieties of cerebral attacks is a raised blood pressure. The actual precipitating cause seems to be a further rise in blood pressure. This rise may be only temporary. Volhard has suggested that in young persons the cerebral capillaries seem unable to adjust themselves to the rapid rise in pressure, and cerebral oedema results. As soon as the cerebral circulation has adjusted itself to the new conditions prevailing, either spontaneously or as a result of treatment, the

symptoms may subside. I have seen more than one case in which, although the cerebro-spinal fluid pressure was much raised (for example, 280 mm. of water or above) the patient at the time of the lumbar puncture was free from headache. If the intracranial pressure is very high a "pressure cone" may be formed through the forcing down of the tonsils of the cerebellum into the foramen magnum. In such a case attempts to relieve the pressure by lumbar puncture may be followed by death.

In the type of hypertensive cerebral attack without evidence of cerebral oedema the sudden rise in blood pressure induces spasm of cerebral vessels, with resulting ischaemia. The symptoms which follow probably depend not only on the degree of spasm, but on the situation and number of vessels affected. If the process is a local one, confined, for example, to a branch of the middle cerebral artery, Jacksonian convulsions may be produced. If, on the other hand, the angiospasm is widespread, then, in addition to generalized convulsions, coma results. That an additional rise in blood pressure is not the sole cause of the cerebral symptoms in this type of attack is made clear by the fact that variations in blood pressure are probably not uncommon in hypertensive patients, yet convulsions are comparatively rare.

The second factor which seems to predispose a hypertensive patient to convulsions is the previous occurrence of a cerebral thrombosis, by virtue of the local circulatory disturbance consequent upon such a lesion. The experimental work of Forbes, Wolff, and their collaborators has opened up a large field for speculation as to the effects of changes in the chemistry of the blood on the cerebral circulation, and it is certain that here lies a third factor.

It might be objected that an arteriosclerotic vessel is unlikely to undergo spasm as a result of changes in its walls. The type of case which is now under consideration is not the atherosclerotic with atheromatous plaques on the circle of Willis, and in which raised blood pressure is quite often absent, but the victim of high blood pressure and diffuse hyperplastic sclerosis in whom the small arteries and arterioles in the body are widely affected. Such changes, except in their later stages, should not materially interfere with the contractility of a vessel. Furthermore, since the lumen of the smaller vessels is narrowed through thickening of the intima it would require a smaller degree of spasm to produce ischaemic phenomena.

Prognosis

Attacks of the type described in this paper are naturally serious in view of the nature of the underlying process. In the form accompanied by cerebral oedema the immediate outlook is favourable, provided steps are taken to combat the increased intracranial pressure. The ultimate prognosis will depend in some degree on the type of case. In a young adult the state of the kidney is an important factor. During the acute phase of generalized vasoconstriction it may be impossible to decide whether the hypertension is primary or secondary to an old kidney lesion. The effect on the kidney will be much the same in either case—namely, a sudden reduction in its functioning power as a result of the disturbance of its normal circulation. As long as the nitrogenous contents of the blood remain within normal limits then the immediate prognosis is good. Subsequently it may be possible to determine the damage to the kidney which the sudden wave of raised blood pressure has caused. In favourable cases the albumin disappears from the urine, and tests for renal function may show good figures. Such cases may go on for a number of years. The blood pressure usually remains, however, at a high level, and it is only a question of a very few years at the most before death results from renal failure or a cerebral haemorrhage. In older persons recovery from the first cerebral attack is usual, but others are liable to follow, and a fatal cerebral haemorrhage or a cardiac failure may supervene. Again, an attack may be followed by actual thromboses, resulting in a permanent hemiplegia.

Treatment

As the essential factor in both forms of cerebral attack is believed to be a sudden additional rise in blood pressure accompanied by widespread vaso-constriction, treatment should be directed towards a reduction in pressure by the speediest methods. Good results have been obtained by a liberal venesection; the use of French's apparatus is advocated. In the form of hypertensive cerebral attack with signs of cerebral oedema venesection will help towards a reduction in intracranial pressure. Further steps should, however, be taken. Intravenous injection of hypertonic salines will diminish headache. Lumbar puncture should also be carried out, first, with the purpose of determining the extent to which intracranial pressure has risen, and, secondly, as a therapeutic measure. Care should, however, be taken in cases where the pressure is high, as by the withdrawal of large amounts of cerebro-spinal fluid a "pressure cone" may be formed, which may lead to a fatal termination. If the cerebro-spinal fluid is under moderately increased pressure (approximately 200 to 250 mm. water) it is safe to remove 10 to 20 c.cm. of fluid. If increased headache follows, then no further lumbar puncture should be done.

In the form of attack without signs of cerebral oedema lumbar puncture and intravenous hypertonic salines are valueless. Venesection is the most important measure. An inhalation of amyl nitrite may bring to an end a series of convulsions; if this fails a subcutaneous injection of 3 grains of luminal is usually successful. Erythrol tetranitrate, 1/2 grain three-hourly, may be given until the blood pressure begins to fall. In both forms an enema should be given at the first possible moment. The likelihood of further attacks may be lessened by the continuous use of vaso-dilators with a hypnotic such as luminal.

References

[1] Forbes, H. S., and Wolff, H. G.: *Arch. Neurol. and Psychiatry*, 1928, xli, 1057.
[2] Hassin, G. B.: Ibid., 1929, xxii, 375.
[3] McAlpine, D.: *Quart. Journ. Med.*, 1933, xxvi, 463.
[4] Oppenheimer, B. S., and Fishberg, A. M.: *Arch. Int. Med.*, 1928, xli, 264.
[5] Penfield, W.: *Arch. Neurol. and Psychiatry*, 1932, xxvii, 68.
[6] Stöhr, P.: *Zeit. f. Ges. Anat.*, Abt. I, 1922, lxiii, 562.
[7] Volhard, F.: *Handbuch d. Inn. Med.*, 1931, second edition, vol. i.
[8] Wolff, H. G., and Lennox, W. G.: *Arch. Neurol. and Psychiatry*, 1930, xxiii, 1097.
[9] Wolff, H. G.: Ibid., 1929, xxii, 686.
[10] Wolff, H. G., and Forbes, H. S.: Ibid., 1928, xx, 73.

H. Nevinny (*Zentralbl. f. Gynäk.*, September 14th, 1935, p. 2162) strongly recommends—and in his own experience has been greatly pleased with—a trial of injection into the presenting part in pelvic presentations (usually the buttock, less frequently the foot) of cardiazol, to diminish foetal mortality. Such injections, done in 142 primary pelvic presentations in 1934, gave in Nevinny's clinic among 130 live-born vaginally delivered babies weighing at least 1.5 kilograms a mortality of 5.4 per cent., among those weighing at least 2 kilograms 4.1 per cent., and those weighing at least 2.5 kilograms 3.7 per cent. Comparable figures in the previous experience of the same clinic and in other clinics showed about 10 per cent. total foetal mortality, in spite of the use of a general anaesthetic and frequent performance of prophylactic lateral incisions of the perineum. The injection of cardiazol, 0.3 to 0.5 c.cm. of 10 per cent. solution, is given as soon as the presenting part appears in the outlet: it was first proposed by Poeck in 1926.

ATYPICAL MEGALOCYTIC ANAEMIA

BY

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In view of the recent description by Wilkinson and Israëls[1] of a new group of megalocytic anaemias, the achresthic anaemias, a short series of cases of typical megalocytic anaemia with absence of achlorhydria recently investigated at the Royal United Hospital, Bath, seems worthy of record. The chief features recognized by Wilkinson and Israëls were: (1) megalocytosis in conjunction with normal gastric acidity; (2) the condition might occur at any age; (3) there were no associated digestive or central nervous system changes; and (4) the reaction to treatment and the prognosis were uncertain.

In the cases to be described most of these features were borne out, but in one there was a history of soreness of the tongue and there was slight denuding of the papillae, and in one case the gastric acidity was not estimated, owing to the gravity of the condition of the patient at the time of admission.

Case I

A boy, aged 11, was first admitted to hospital in 1932 suffering from anaemia, but from no symptoms not directly ascribable to the anaemia. The central nervous system appeared normal. On examination the tongue was normal; the spleen was just palpable, but the liver was not enlarged. The blood count was: haemoglobin, 24 per cent.; red cells, 1,200,000 per c.mm.; colour index, 1; white cells, 1,450 per c.mm.; polymorphonuclears, 730; lymphocytes, 590; and monocytes, 130. There was marked anisocytosis and poikilocytosis, and a few normoblasts were present. After treatment with liver and stomach preparations by the mouth the blood count rose to: haemoglobin, 56 per cent.; red cells, 3,700,000 per c.mm., and colour index, 0.77.

In 1934 the boy was readmitted with the same symptoms, and the blood count was: haemoglobin, 22 per cent.; red cells, 1,110,000 per c.mm.; and the colour index, 1. A stained film demonstrated definite megalocytosis. A test meal showed a rise in free hydrochloric acid from 0 to 65 c.cm. decinormal NaOH at the end of an hour and a half. After treatment with campolon injections and stomach preparations the blood count altered to: haemoglobin, 62 per cent.; red cells, 4,870,000 per c.mm.; and colour index, 0.6.

Case II

A woman, aged 46, was first admitted to hospital in 1933. She then gave a history of anaemia for twenty years, which had increased three years before, when she had suffered from an ulcerated mouth. She had been treated outside the hospital with liver, and had improved to some extent. On examination there was no sign of involvement of the central nervous system, of sore tongue, or of fever, and the weight was constant. The liver and spleen were not palpable. A blood count then showed the presence of a secondary anaemia: haemoglobin, 22 per cent.; red cells, 1,980,000 per c.mm.; colour index, 0.55; white cells, 3,800 per c.mm. This anaemia slowly improved under treatment with iron.

The patient was readmitted to the hospital a year later, when she had, in addition to her anaemia, some symptoms of tetany. The blood count was: serum calcium, 6.9 mg. per cent.; haemoglobin, 36 per cent.; red cells, 1,710,000 per c.mm.; colour index, 1; white cells, 1,400 per c.mm. The average size of the red cells was 8.2 μ. Anisocytosis was present, and a few normoblasts, but no megaloblasts. Examination of the stomach contents revealed free hydrochloric acid. Under treatment with campolon injections and iron by the mouth there was at first no response, the haemoglobin remaining at 36 per cent. and the colour index rising to 1.2. A blood transfusion was given, followed by treatment with stomach preparations and iron, and the count then slowly rose to: haemoglobin, 62 per cent.; red cells, 3,130,000 per c.mm.; and colour index, 1.

Case III

A woman, aged 53, was admitted to hospital in 1933 with tiredness, soreness of the tongue, and pruritus. There were no digestive or central nervous system changes; the urine was normal, and the liver and spleen were not palpable. The blood count was: haemoglobin, 85 per cent.; red cells, 4,080,000 per c.mm.; colour index, 1.04; white cells, 3,500 per c.mm.; reticulocytes, 0.9 per cent. The van den Bergh reaction was negative. A test meal showed the presence of free hydrochloric acid, rising from 15 to 30 c.cm. decinormal NaOH at the end of an hour. Under treatment with campolon the reticulocyte response on the fifth day was 4.3 per cent., and the count rose to: haemoglobin, 86 per cent.; red cells, 4,890,000 per c.mm.; and colour index, 0.88.

Case IV

A man, aged 59, was admitted to hospital complaining of tiredness and giddiness. There were no digestive or central nervous system symptoms, nor was there any soreness of the tongue. The spleen was not palpable, but the liver could just be felt. The blood count was: haemoglobin, 43 per cent.; red cells, 1,940,000 per c.mm.; colour index, 1.1; white cells, 5,300 per c.mm.; polymorphonuclears, 3,000; lymphocytes, 2,100; monocytes, 200. No nucleated red cells were present, but there was marked anisocytosis and poikilocytosis; reticulocytes, 0.8 per cent. Examination of the stomach contents showed a rise in the free hydrochloric acid of the fasting juice from 20 c.cm. to 65 c.cm. decinormal NaOH at the end of an hour. Under treatment with liver there was a reticulocyte response of 13.4 per cent. on the fifth day, and the amount rose to: haemoglobin, 62 per cent.; and red cells, 3,820,000 per c.mm.

Case V

A single woman, aged 50, was admitted to hospital with the following history. Since a child she had always been anaemic and rheumatic, and ten years before admission the anaemia had increased and there had been some menorrhagia. Both symptoms had been relieved by iron medication. Three months before admission the menorrhagia restarted, and there was then marked anaemia and tachycardia. Iron was given in large doses, but without success. A cough developed and an *x*-ray picture of the lungs showed a mottling suggestive of chronic fibrosis with superadded congestion.

One month before admission the menorrhagia increased, and a blood count then showed: haemoglobin, 32 per cent.; red cells, 1,400,000 per c.mm.; colour index, 1.1; and white cells, 11,000 per c.mm. A vaginal examination revealed no abnormality, and the heart appeared to have no valvular lesion. Treatment with campolon injections was immediately started. Just before the patient came into hospital there was a sudden flooding and she became maniacal.

When first seen in hospital she was very pale. The pulse rate was 110–140; the temperature ranged between 98° and 101°; and the respiration rate was 28. The blood count was: haemoglobin, 10 per cent.; red cells, 760,000 per c.mm.; colour index, 0.68; and white blood cells, 9,600 per c.mm. A blood transfusion of one pint was given immediately, and this was repeated two days later. By this means and with energetic iron and liver therapy the blood count was gradually raised to: haemoglobin, 27 per cent.; red cells, 1,300,000 per c.mm.; colour index, 1.04; white cells, 16,900 per c.mm.; polymorphonuclears, 13,900; myelocytes, 100; myeloblasts, 100; lymphocytes, 2,000; and mononuclears, 500. The platelets were large but scanty (66,000). There was marked anisocytosis and poikilocytosis, and many normoblasts and megaloblasts were present: reticulocytes, 10.6 per cent. The blood fragility was normal.

On the seventeenth day the patient suddenly developed bronchopneumonia and died. Post-mortem examination showed extreme normoblastic activity of the marrow, which was greatly increased in amount. There was considerable fatty change with areas of congestion and haemorrhage in the liver and kidneys, and the spleen was enlarged and rather soft. The lungs revealed signs of bronchopneumonia, but the heart muscle was fairly good with no sign of valvular lesion. The uterus was normal, but the cervix contained two small polypi.

Summary

Five cases of atypical megalocytic anaemia are described. In the first, in a boy of 11, the stomach showed normal acidity and the condition reacted well to liver therapy.

The second case demonstrated the development of a megalocytic from a microcytic anaemia in a woman with normal gastric acidity. The condition failed to react to liver or iron therapy until after blood transfusion. The condition was associated with tetany.

Cases III and IV appeared typical of pernicious anaemia; in Case III the anaemia was associated with soreness of the tongue, but analysis of the gastric contents in both cases showed the presence of free hydrochloric acid.

Case V cannot be definitely classified as of achresthic anaemia, owing to the fact that on admission to the hospital the patient was too ill to have a test meal. An anaemia at first reacting to iron but later becoming definitely megalocytic, it showed no response to iron or liver therapy, and only reacted slowly to blood transfusion. The anaemia was accompanied by menorrhagia, and during the more severe stages with mania. The patient died of bronchopneumonia, and the post-mortem findings were those of intense normoblastic activity in conjunction with fatty degeneration of the vital organs.

REFERENCE

[1] Wilkinson, J. F., and Israëls, M. C. G.: *British Medical Journal*, 1935, i, 139 and 194.

A CONTRIBUTION TO THE TREATMENT OF BURNS

BY

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Ten years ago E. C. Davidson of Detroit introduced a new method of treatment of burns by means of tannic acid solution. The surgeon has thus been armed with a weapon completely replacing modes of treatment which were clumsy, unsatisfactory, and expensive, while mortality has been very considerably lowered and suffering greatly reduced. There will be no doubt in the minds of those experienced in the treatment of extensive burns of the first three degrees that the coagulating method is the ideal one. Certain aspects of the tannic acid technique are, however, unsatisfactory. An attempt has been made to overcome the worst of these by modifying the treatment while still retaining the basic ideal—the "coagulated" and desiccated surface.

The advantages and disadvantages of any particular line of treatment can only be ascertained by careful examination and analysis of a large series of cases. The observations which follow were made over a period of five years, during which the tannic acid method was used, and a one-year period in which modifications of this technique were adopted. The total number of cases of burns in this series, inclusive of all degrees sufficiently serious to render the patient unfit for work, was 2,696.

Disadvantages of Tannic Acid

1. *The Coagulum.*—In the case of tannic acid this is coarse, tough, and not transparent. Any pus formation beneath it is difficult to diagnose, and may spread over a large area rather than perforate an unyielding scab. In this way much of the young epithelium may be destroyed before any signs of damage are manifest. When the scab, floating on a bed of pus, is removed later a very coarse type of granulation tissue will be found beneath, which is difficult to control and ultimately tends to produce extensive scarring. These observations suggested to us that certain definite advantages could be claimed for a thin, transparent scab.

2. *Destructive Action.*—Tannic acid may well be described as "dirty," and is, in addition, most destructive to clothing and bed linen. This necessitates the use of a mackintosh to protect the bed. The mackintosh acts on the burnt area like jaconet used in a fomentation. Delay in evaporation takes place to such an extent as seriously to interfere with one of the main essentials of the treatment. The choice, therefore, lies between sacrificing the bed linen or restricting the evaporation from the surface of the coagulum, which is so essential for its well-being.

3. *Instability in Solution.*—A further very important objection to tannic acid is that it rapidly becomes unstable in the aqueous solution required for use. This makes its employment most cumbersome both as a first-aid measure and also in hospital practice.

The above disadvantages suggested a search for an equally satisfactory coagulant which would not destroy linen and could be kept indefinitely in solution.

Process of Repair of a Burn

In the process of repair the exudate from the surface does not coagulate, or does so only in a very slight degree. Fibrin strands may be demonstrated, but are usually insufficient in quantity to form a firm coagulum. Many drugs are found to have the property of assisting in the formation of a coagulum. Our contention is that the ideal drug to employ is one with strong antiseptic and bactericidal properties, which will at the same time help to bind the crust. After a trial with several drugs, mercurochrome (di-sodium-dibromo-oxymercury fluorescein) was selected, as it appeared to possess the necessary qualities. It was given an extensive trial over a period of one year, and the following observations were made.

1. Mercurochrome does not precipitate protein, and can therefore be claimed as an effective antiseptic in the presence of protein.
2. In cases treated with this drug the crust formed is thin and transparent.
3. Bed linen is not in any way destroyed.
4. It is non-irritating to the tissues.
5. A 2 per cent. aqueous solution is stable for an indefinite period.
6. Epithelialization under the scab takes place rapidly. It was noteworthy in using some other drugs, particularly trypaflavine, that though the crust formed was excellent little or no epithelialization took place beneath it, and aseptic necrosis of the superficial living tissues occurred.

Technique and Results of Mercurochrome Treatment

The treatment of shock and exhaustion are dealt with on generally accepted lines and will not be further discussed here. With reference to the preliminary local treatment there are certain points of importance.

1. No general anaesthetic—not even nitrous oxide and oxygen—is given. Many cases of extensive burns require hours of preliminary work, which can only be accomplished by dealing with small areas at a time. Large doses of morphine or other opiates are recommended, and are usually quite effective.
2. All dead tissue is stripped from the burnt area and foreign material removed. The greater the care taken in this the better will be the end-result.

3. At this stage no antiseptic whatever is recommended. The denuded area should be swabbed over with cotton-wool soaked in normal saline at about 100° F. until all debris has been removed.

4. When the general toilet of the area has been completed it is swabbed over with a 2 per cent. aqueous solution of mercurochrome. The surface is then dried with the assistance of an electric hair drier, an ordinary electric radiator, or an electric cradle, provided the last-named has ventilation holes along the top. Desiccation takes place rapidly.

The following routine treatment is recommended: first day, four applications; second day, three applications; third day, two applications. The area is dried off after each application, and is always kept exposed to the atmosphere. In some cases where a large area is involved the patient is forced to lie on a portion of the burnt surface and the crust is likely to disintegrate. This feature is not associated in any way with the drug used, but in our opinion is the result of inadequate evaporation from the surface. The patient should therefore be frequently turned and the freest ventilation possible provided. Should there be any local collection of pus—and diagnosis of this is facilitated by the thinness and semi-transparency of the crust—the crust should be freely removed from the area, the area swabbed up with normal saline as before, and the mercurochrome treatment reapplied.

A very brief account of a recently treated case is given below.

F. B., aged 32, European, an electrical engineer, was admitted to hospital on the morning of August 19th, 1935, suffering from burns sustained by coming in contact with an electric arc at a voltage of 33,000. It is assumed that all the burns were caused by the actual flame of the arc.

The following were the areas and degrees of the burns sustained. *First degree.*—A large area of the chest above the nipples and the back of the neck. *Second degree.*—The entire face and front of the neck as far back on each side as the mastoid process; the left forearm; an area about three and a half inches in diameter over the left patella. *Third degree.*—The back of the left hand; the right thenar eminence; an area on the chest from left clavicle to the fourth interspace. There was also superficial burn of the lower half of both corneae.

The eyes were treated with cocaine, atropine, and liquid paraffin, and cleared up in thirty-six hours. The burnt areas were treated by the routine mercurochrome method. The patient's temperature was normal from the fourth day onwards. By the twelfth day the burns had cleared up, though the scab had not yet separated from the back of the left hand. There was no scarring, and the patient was able to shave on the eleventh day.

Conclusion

Our results have been most encouraging. The rapidity and reliability with which desiccation has taken place have been eminently satisfactory, and with adequate preliminary treatment we have been able to reduce sepsis to a minimum. On a general survey of our cases it would appear that patients treated with mercurochrome have less general reaction during convalescence than those treated with other agents, while the amount of pain and discomfort compare well with any other method. On no occasion have we seen any toxic effects following the use of this drug.

I wish to express my thanks to Dr. E. Jamieson, chief medical officer of the Anglo-Iranian Oil Company, for permission to publish this article.

Bibliography

Davidson, E. C.: *Surg., Gynecol. and Obstet.*, xli, No. 2.

Wilkie, D. P. D., *et al.*: Report on Medical Treatment of Men Burned in Colliery Explosions. Mines Department, H.M. Government.

Mitchiner, P. H.: *Med. Press and Circ.*, December 13th, 1933.

A NOTE ON CUTANEOUS CANCER IN COTTON MULE-SPINNERS

BY

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Dr. A. E. Somerford, in his interesting paper published in the *British Medical Journal* of June 29th, 1935 (p. 1305), concludes that non-scrotal cancer in cotton mule-spinners is not occupational in origin, and supports the view that the causal factor in the development of scrotal cancer in these workers is not exposure to mineral oil, but continued friction at this site.

A Local Inquiry

In 1930 I made an inquiry into the occupational incidence of cutaneous cancer in men in the Blackburn Registration District,[1] the census figures for which give the number at risk in the different occupations, this, of course, being of the greatest importance in the consideration of occupational diseases.

Details of patients suffering from this disease and who lived in this area were extracted from the death registers from 1837 and from the in-patient and out-patient registers of the hospitals serving the area (from 1865). The cases not ascertained by this means must be few in number. The cotton trade is the principal industry, employing almost all of the textile workers in the district, and many of the other industries are associated with, and to a great extent dependent on, it.

In all 625 cases were traced, 246 occurring in men engaged in the cotton trade. In addition, there were twenty-five* of epithelioma or cancer of the groin and groin glands, almost certainly secondary to cancer of a skin site (scrotum, penis, or leg), and a further twenty-five† of "epithelioma," the site of which was not stated. As further information about these cases was not available they have not been included in the following table, which summarizes the findings and shows the numbers employed in the different occupations as stated in the 1921 census for the district.

Occupation as described in Registers	Number of Men Employed (Census 1921)	Cases of Skin Cancer Traced								
		Rodent Ulcer	Squamous Epithelioma				Total Non-scrotal	Scrotal Epithelioma	Total	Percentage Non-scrotal
			Head and Neck	Lip	Penis	Others Non-scrotal				
Cotton mule-spinners	1,502	19	9	—	3	8	39	94	133	29.3
Cotton weavers	10,917	13	13	7	7	8	48	3	51	94.1
Other textile workers	10,050	18	21	4	6	7	56	6	62	90.3
Others	52,621	64	105	85	44	44	343	36	379	90.5
All occupied males	75,100	114	149	96	60	67	486	139	625	77.7

The following table is intended to show the relative incidence of cutaneous cancer among spinners and other sections of the employed male population.

Occupation	Number of Cases traced per 1,000 Employed in 1921	
	Non-scrotal	Scrotal
Cotton mule-spinners	26.0	62.6
Cotton weavers	4.4	0.3
Other textile workers	5.6	0.6
Others	6.5	0.7
All occupied males	6.5	1.8

* Spinners 8, weaver 1, other textile workers 5, others 11.
† Spinner 1, weaver 1, other textile worker 1, others 22.

The spinning and other sections of the cotton industry have in this area developed *pari passu* during the period under review, but since spinning of cotton by the "mule" declined in the area from about the year 1900 (due to the introduction of spinning by ring frames, on which mainly females are employed) the proportion of cotton mule-spinners to other workers in 1921 was less than it had been during preceding years. On the other hand, inquiries made in sampling the cases have shown that while practically all those described in hospital or death registers as cotton mule-spinners proved to have been always such, some of those otherwise described—for example, as bobbin carriers, caretakers, etc.—were found to be really ex-spinners, with a subsequent short period of other occupation. These have been classified in the tables according to their description in the registers, and this neutralizes to a very considerable extent the error involved in using the 1921 census figures as indicative of the relative states of the different occupations in regard to the numbers employed over the period under review. It is therefore reasonable to conclude that the table does give a fair picture of the relative frequency of cutaneous cancer in spinners as compared with that in men engaged in other occupations.

Commentary

It is quite clear from the results of my inquiries that in this area cotton mule-spinners have shown an incidence of skin cancer, not only of the scrotum, but also of non-scrotal sites, very markedly in excess of other cotton operatives or other workers generally.

Sixteen men in the series suffered from more than one primary cutaneous cancer; twelve were cotton mule-spinners, and in eight of these at least one of the sites was non-scrotal. A bobbin carrier, a chimneysweep (both of whom proved to be formerly spinners), a fireman, and a maker of wall paint (both formerly cotton weavers) had all suffered from a scrotal and a non-scrotal primary skin cancer. This surely provides striking evidence in regard to the occupational influence of cotton mule-spinning causing skin cancer of even non-scrotal sites.

Additional evidence of the excessive incidence of non-scrotal skin cancer in cotton mule-spinners is available from the Registrar-General's observations: first, that during the period 1921–3, in cotton spinners, the number of deaths from non-scrotal skin epithelioma was 23 per cent. of the total number of deaths from epithelioma of all cutaneous sites[2]; and, secondly, the comparative mortality figure for skin cancer during the three years 1920–2 was in cotton spinners sixteen times that in the general occupied and retired male population.[3]

The occupational character of scrotal cancer in cotton mule-spinners is now generally admitted. The excessive incidence of non-scrotal skin cancer in spinners seems to me significant, as indicative of some occupational factor being causal; and there can be no doubt that the mineral oil that has been used in cotton-spinning processes is carcinogenic. It seems highly improbable that friction alone, in the absence of exposure to mineral oil, would cause scrotal cancer in spinners. Certainly the disease occurred in these workers before the introduction of coloured and stiffened overalls. It may be that while exposure to mineral oil is the main factor in the initiation of skin cancer in such workers, some other factor, such as continued friction, an injury, a burn, or local anatomic peculiarities, etc., may determine the site of the growth or may hasten its appearance.

References

[1] Irvine, E. D.: Cancer of Skin in Males in Blackburn Registration District, 1837–1929. Thesis, Liverpool University, 1931.

[2] Report of Departmental Committee on Occurrence of Epitheliomatous Ulceration in Spinners, 1926, p. 9. H.M. Stationery Office, London.

[3] Registrar-General's Decennial Supplement (England and Wales), 1921, Part II, Table V, p. 28.

Clinical Memoranda

Retinitis Treated by Protein Shock

This case may be of some interest as it demonstrates the success of non-specific treatment in a disease which often has very serious results on the vision.

The patient was a cobbler, aged 70. He first attended the Bristol Eye Dispensary out-patient department on October 1st, 1933, complaining that vision had been gradually failing for the previous two months, and was now very poor. He had no pain, and did not complain of photophobia.

On testing his visual acuity the vision of each eye was found to be the same—namely, less than 6/60. The addition of his proper correction (+ 2 D, R. and L.), made little improvement, his vision still remaining less than 6/60. Externally there was no defect or disease visible, and the pupils reacted normally to light and accommodation. The fundi, however, showed congestion and swelling around each disk, extending to the macula, around which were numerous small dots of exudate. The remainder of the retina looked faintly congested, but not pathologically so. The blood pressure was normal for his age, and the blood vessels appeared to be less sclerotic than one might expect in a man of the patient's years. The field was found to be uncontracted, but there was a central scotoma. Colours were not distinguished.

The case was at first treated along the ordinary lines, a search being made for septic foci. Although apparently not bad, his few remaining teeth were extracted, his nose and throat examined by a throat and nose surgeon and found to be without blemish. He enjoyed good health, ate well, had no stomach trouble, and did not suffer from constipation. His Wassermann reaction was negative. Although not a heavy smoker, he was cut off tobacco. He was put on pot. iod., 5 grains t.d.s.

He was seen fortnightly until July, 1934, when it was decided to give him a series of T.A.B. injections, as there had been no improvement. His vision and the fundi appeared unchanged. It must be noted that although his vision was no better at least it was no worse. The material used was the ordinary series prepared by the pathological department of the Bristol General Hospital, and was of dosages: first injection 10 millions, second 25 millions, third 50 millions.

He was admitted as an in-patient on July 9th, and was given the first injection intravenously. The temperature rose steadily, reached a peak of 103.4° F. in about two hours, and gradually declined, passing off altogether in about nine hours. During this time he sweated profusely, and after it was all over said he felt weak, but otherwise normal. A detailed description of each injection is hardly necessary, as the effects of protein shock are of course well known.

The second injection was given on July 11th, and the third on July 13th. He was discharged on July 15th. Seen again a fortnight later it was noticed that some of the congestion had disappeared, and his visual acuity with glasses was now 6/60. On September 2nd it was 6/24, and it gradually improved until by December 2nd it was 6/6 in the left eye and 6/9 in the right with glasses. All congestion and exudate had by then disappeared from the retinae, although there was slight scarring around each macula where the exudate had been. Doubtless this will be permanent. When last seen, on June 14th, 1935, he had maintained his improved vision, and it is to be hoped this will remain so.

Although it is obviously unsafe to draw any definite conclusion from a single case, yet taking into consideration the well-known beneficial effects of protein therapy it is not unreasonable to attribute its beneficial effect in this case to its influence on some hidden focus.

One fact stands out clearly, be the explanation what it may—that whereas no ordinary treatment resulted in any improvement over a period of eight months, very marked improvement followed the use of T.A.B.

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Reviews

LEGAL MEDICINE IN VICTORIA

The foundation of the Medico-Legal Society of Victoria in 1931 filled a need which had been felt for some time in Australia. The then president of the Melbourne Medical Society, Dr. Mark Gardner, found many adherents when, in one of his addresses, he proposed that Australia should have a medico-legal society of its own like that of the Mother Country. During the next year the Victorian Society became affiliated with ours and elected Lord Riddell an honorary member. It owed a great deal at the outset to its first president, Mr. Justice McArthur, a member of the Victorian Supreme Court Bench, and its energetic officers have now enlisted an imposing membership. As a tangible proof of its activity it has published the first volume[1] of its *Proceedings*, covering the two years from 1931 to 1933, in a neat blue binding very much like that in which the *Transactions of the Medico-Legal Society* used to be produced before the institution of the present Quarterly Review.

The papers collected in this volume are fully up to the standard of the mother society. The inaugural paper on "The Medico-Legal Aspect of Judicial Hanging" was delivered by Professor F. Wood Jones on August 29th, 1931. There followed a discourse on Medical Murderers, by Mr. Eugene Gorman, K.C., which includes an interesting account of the "Resurrectionist Murders" in Edinburgh. As one of the members pointed out in the discussion, it was a little hard on Dr. Robert Knox to be classed as a medical murderer when he was not even put on trial, and there is a strong body of opinion which declares that he was not even morally guilty of the atrocities committed by Burke and Hare. This view was skilfully put forward in a recent play by "James Bridie" (Dr. O. H. Mavor), which those who saw it will remember for a long time. A vigorous discussion took place on "The Plea of Insanity," opened by Dr. R. S. Ellery, which showed a general dissatisfaction with the present state of law as crystallized in the M'Naghten rules. This report is enriched by an extract from Mr. Justice Dixon's charge to the jury in the Australian case of R. *v.* Porter (1933), a very lucid statement of an unfortunate legal position. The troubles of the medical witness are a frequent subject for medico-legal discussion, and rightly so; Mr. D. Gavan Duffy delivered a spirited lecture on this theme which should greatly help the medical witness in Australia. Dr. J. L. Jona read a paper on the law in relation to experiments on animals, and the meeting was almost unanimous in desiring the present restrictions to be relaxed. The lecture on "Professional Confidences" by Mr. R. G. Menzies, K.C., is especially interesting to medical men in the United Kingdom because of the Victorian statute which allows to medical secrecy the same privileges as to legal secrecy. "The Ethics of Abortion" were dealt with by Dr. A. E. Brown, who stressed the acute and growing dilemma of the doctor whose patient asked him to perform an abortion and who was unable to give sincere reasons why he would not. This problem is pressing in Australia, and the discussion must have helped the medical profession to adjust their ideas on the matter. In this particular case the Medico-Legal Society performed an invaluable function, for it provided a platform for the discussion of a subject which the British Medical Association had for good reasons preferred to leave alone, on account of the provision which obliges it to publish in the *Medical Journal of Australia*, which is available to the public, all the papers read at medical meetings. Dr. C. G. Godfrey dealt with "Testamentary Capacity," a knowledge of which is indispensable to every medical practitioner.

There is a freshness about these papers and discussions which gives great promise of valuable contribution to legal medicine in the future. The science is very backward in the United Kingdom, largely because the coroner system so greatly restricts the use of fresh corpses for study. The Victorian Society will undoubtedly progress greatly and be a source of strength to our own. There is little to criticize about the first volume of the *Proceedings*. It might perhaps be a little easier to read if the editors would break up the matter into shorter paragraphs. There are too many pages consisting of solid blocks of type, which present a rather forbidding appearance even to the enthusiastic student. A few cross-headings would assist the eye and the mind. In the third-person reports of speeches and discussions there is an uncertainty about the tenses.

[1] *The Proceedings of the Medico-Legal Society of Victoria During the Years 1931–2 and 1932–3.* Edited by John V. Barry, Barrister-at-Law, and A. E. Coates, M.D., M.S., F.R.A.C.S. Melbourne: Brown, Prior and Co. Pty., Ltd., 1935.

PATHOLOGY OF DIGESTION

Many old students can recall their confused state of mind when first taking up a course of one of the specialties during their training, and their wish for some simple textbook that would set out for them the fundamentals of the subject and a programme of study. Attempts are being made to bridge over the stages from the knowledge of pathology to its application in clinical work and the indications thus obtained for efficient treatment. With this end Masson's, the Paris medical publishers, are bringing out a series of brochures to initiate students into the various branches of clinical studies. We have received the volume on the pathology of digestion by Professor HARVIER.[2] The author points out the interdependence of the various parts of the alimentary tract, and how they are controlled by the vago-sympathetic nervous system, and he then proceeds to discuss the motor, secretory, and sensory disturbances of the digestive tube. These are all dealt with in an up-to-date manner, and the student is led from what he already knows to the pathology of these disturbances and so to ideas on the causation and management of the disease syndromes. The book is well illustrated by radiographs of the appearances discussed, and concludes with a short essay on case-taking and examination of patients whose presenting symptoms are those pointing to disturbance of the digestive tract. It thus fulfils admirably the purpose for which it is written. We doubt, however, if the ordinary student would have the time or money to purchase and peruse a couple of dozen of these brochures, which make a good beginning, but need amplification by textbooks. It may be best for him to concentrate upon and assimilate one textbook.

BLOOD DISEASES

The appearance of a third edition of Drs. PINEY and WYARD'S *Clinical Atlas of Blood Diseases*[3] shows that there is a real need for a cheap English picture-book of the blood cells. The artist, Mr. J. R. FORD, and the publishers have done so well in producing a series of coloured plates at a reasonable price that one can only regret that the text is less satisfactory. We do not feel justified in recommending this atlas to the beginner in

[2] *Pathologie Digestive.* By P. Harvier, Professeur à la Faculté de Médecine de Paris, Médecin de la Pitié. Paris: Masson et Cie. 1935. (Pp. 162; 14 figures. 22 fr.)

[3] *Clinical Atlas of Blood Diseases.* By A. Piney, M.D., M.R.C.P., and Stanley Wyard, M.D., M.R.C.P. Third edition. London: J. and A. Churchill Ltd. 1935. (Pp. 110; 38 figures (34 in colour). 12s. 6d.)

haematology. Plate 10, labelled Chlorosis, in which particular attention is drawn to megalocytosis [sic], is much more suggestive of idiopathic steatorrhoea; but the authors have peculiar ideas about chlorosis, and state that the van den Bergh reaction is positive. It is not necessary for the red cells in aplastic anaemia to be haemolysed, as they are in Plate 16, nor is it usual for a third of the cells in a single field to be blood platelets. In several instances—as for example Plate 32, Hodgkin's Disease, and Plate 35, Werlhof's Disease—no indication is given that the picture is a composite of many films, and the result is grossly misleading. To waste an expensive coloured plate on haemophilia (Plate 36) is just silly. The megalocytosis and extreme reticulocytosis in Plate 20, Haemolytic Jaundice, suggest that the film is from one of the rare acquired types and not the classical acholuric jaundice. Opposite the section on agranulocytosis is Plate 21, which is labelled Degeneration of Bone Marrow with Consequent Leucopenia (Acute Miliary Tuberculosis); the field is studded with granulocytes, and nothing could be less like the bone marrow of agranulocytosis. It is difficult to read the text without constant irritation and the frequent discovery of errors. If, for example, the authors are accustomed to leave undiluted Leishman's stain on their films for three minutes it is no wonder they find the method unsatisfactory. The material needs reclassification and rearrangement, and the amount of space allocated to different sections of the subject is not proportionate to their relative importance.

UROLOGY

Mr. A. E. ROCHE always writes easily, and his present work on *Urology in General Practice*[4] is one that can be read with ease and enjoyment. At the same time he should not forget his audience. The book is written for the general practitioner, and is intended to help him in making a diagnosis and in instituting suitable treatment. He is called to a patient about whom he may know nothing, and is expected to make a diagnosis and prescribe treatment within the space of a few minutes. He has no radiographs or pathological reports to help him, and must rely entirely on the history he obtains from the patient and on his own findings on physical examination. A book to be really useful to him should specialize on these two points. This, unfortunately, Mr. Roche has not done. He gives instead a general survey of the various urological diseases, illustrated by numerous cases drawn from his own experience and supported by the opinions of others. This makes the book interesting and readable for one who knows something of the subject, but gives little help to the doctor puzzling over a difficult case.

There is in places a curious want of balance in the space allotted to the different subjects. Renal tuberculosis is dismissed in two pages, six lines of which are devoted to symptomatology, while no fewer than fourteen pages are occupied by a discussion of torsion of the hydatid of Morgagni, and seventeen are devoted to torsion of the spermatic cord. Both these testicular conditions are rare, and the practitioner will be lucky if he sees one case in a lifetime, while renal tuberculosis is unfortunately common. Mr. Roche prepares us for this in his preface, where he says that "there is thus a marked inequality in the length of many chapters, which is not proportional to the importance of the subjects considered."

Mr. Roche is at his best in the opening chapters, which deal with the investigation of a urological case and urinary symptoms—increased frequency of micturition, difficulty in micturition, haematuria, pyuria, etc. The chapters on prostatic enlargement, catheters and catheterization, and urethral stricture are excellent. The illustrations, most of which are reproductions of radiographs, are also well chosen and instructive.

[4] *Urology in General Practice.* By A. E. Roche, M.A., M.D., M.Ch., F.R.C.S. London: H. K. Lewis and Co. Ltd. 1935. (Pp. 356; 40 figures, 3 coloured plates. 17s. 6d. net.)

CUNNINGHAM'S PRACTICAL ANATOMY

There are many who will welcome the publication of the ninth edition of *Cunningham's Manual of Practical Anatomy*.[5] The book has been thoroughly revised and remodelled by Professor J. C. BRASH and Dr. E. B. JAMIESON, who have ably carried on the traditions of their distinguished predecessors. Although a gradual increase in size has taken place in previous editions, the original character of the book has been maintained—namely, that of "A Dissector's Guide" (1879), and notwithstanding a considerable amount of new matter the present edition, when compared with the preceding, shows an actual reduction in size of each of the three volumes. One change which will be very popular is the use now of the revised nomenclature adopted by the Anatomical Society of Great Britain and Ireland in 1933. Another special feature is the endeavour of its authors "to bring the student's work in the dissecting room into closer relation with his study of the living body," and to place due emphasis on matter which will be of use to him in his clinical work. Thus the lymphatic system has received special attention, and many changes or additions have been made in the sections dealing with the thoracic and abdominal viscera, among which may be mentioned the admirable radiographs reproduced in the negative form usually employed in clinical work. These will serve as a valuable standard of comparison of normal radiographs with those taken for the diagnosis of injury or disease. Special mention may be made of the radiographs taken from living subjects or cadavers, parts of which have been injected or catheterized so as to show such cavities or tubes as the ventricles of the brain, air sinuses, pharynx, oesophagus, bronchioles, biliary system, and ureters. The original drawings and radiographs, many of them characterized by extreme fineness of detail and delicate gradations of tone, have been admirably reproduced, and the authors and artists are to be congratulated on the successful manner whereby the various parts, some of which are distinctively coloured, have been indicated and displayed.

There are remarkably few omissions or mistakes; exception, however, must be taken to the description of the internal intercostal muscles, posterior intercostal membranes, and the intercostal vessels and nerves. From both the morphological and the developmental standpoint it has been conclusively shown that there are three principal planes of musculature in the thoracic wall, which correspond to the three planes of muscle in the abdominal wall. The innermost muscular stratum of the thorax, the "transversus thoracis," corresponds to the "transversus abdominis," and consists of the "sterno-costalis," "intercostales intimi," and "subcostales." The intercostal vessels and nerves lie between the "intercostales intimi" and the "intercostales interni." The thin edge of muscle beneath which the intercostal vessels and nerve "slip" is the posterior or internal border of the intercostalis intimus, and not the internal intercostal muscle. This can easily be demonstrated by carefully reflecting

[5] *Cunningham's Manual of Practical Anatomy.* Revised and edited by J. C. Brash and E. B. Jamieson. Ninth edition. Vol. i, *General Introduction: Upper Limb; Lower Limb.* (Pp. 423; 159 figures, 44 radiographs.) Vol. ii, *Thorax and Abdomen.* (Pp. 509; 222 figures, 16 radiographs.) Vol. iii, *Head and Neck; Brain.* (Pp. 544; 230 figures, 12 radiographs.) London: H. Milford, Oxford University Press. 1935. (12s. 6d. net each volume.)

this layer downwards, towards the rib bounding the lower border of the space, detaching the muscle from the upper margin of the subcostal groove, thus exposing the intercostal vessels and nerve and the internal intercostal muscle, each of which is covered by a facial sheath. Branches are given off from the intercostal nerves which supply the parietal pleura, of which we can find no mention in the text. Nor is any reference made to the mode of action of the intercostal muscles or diaphragm, except the mere statement that the latter is a muscle of respiration. The manual as a whole is, however, wonderfully exact and complete, and is certainly one of the best "guides to dissection."

Notwithstanding the superlative excellence of this and other books of a similar nature, there is a very real danger of the descriptive element in the work overshadowing its original purpose—namely, that of a dissecting manual—and thus leading the student to the belief that the purely regional description is enough for his present requirements. Most teachers of experience are, however, fully aware that the knowledge gained in the dissecting room or from a dissecting manual must be supplemented by the simultaneous study of certain standard works on systematic anatomy, histology, embryology, and applied anatomy. Attempts have from time to time been made to combine these different aspects of the study in a single volume, which means a still further increase in the size of the book. This difficulty might be overcome by the insertion of a few references in appropriate places to special books in which the desired information will be found. One example only need be mentioned. The description of the uterus and its adnexa in most dissecting manuals is of these organs in a quiescent, non-functioning condition, and necessarily gives an inadequate conception of their anatomy during the various phases of menstruation and pregnancy. Even though applied anatomy is best postponed until a later stage in the curriculum, it would be of great advantage to a student at the time when he is handling the parts in the dissecting room to know where he can obtain the requisite information, and what books it will be necessary for him to possess for home reading.

Notes on Books

Dr. FRANK LAYTON'S *Hanged by the Neck* (Ivor Nicholson and Watson, 7s. 6d.) is a crime story of an unusual kind—no small achievement at a time when every possible permutation and combination in theoretical murder would seem to have been exhausted. Here is a murder, but no subtle detective work, either professional or amateur. This is obviously deliberate, because, before the real purpose of the book became plain, it seemed to one reader at any rate that the policeman, who is no fool, not to mention the doctor, who is a good, honest, if not brilliant type, could not have failed to exhibit more curiosity about the other man. There are two who had obvious opportunities for the crime, and even if one seemed to have a material incentive for the crime the other man *might* have been given a thought, even by a policeman. Dr. Layton doesn't exploit the usual convention of the detective story, which is that the police force is mainly manned by half-wits. For the purpose of this story it is the natural desire of the police for a conviction, and the usual human inclination to take the easier line, which is rightly emphasized. If this were a mere thriller criticism on this point would be easy, but Dr. Layton's story is a sincere and forcible exposure of the defects, risks, and uncertainties inherent in capital punishment as a penalty. As such it is calculated to make any reader decidedly uncomfortable, even if he be not convinced that any alternative is more likely to serve the needs of the community. In any case, the story is absorbing. The dialogue, always Dr. Layton's strong suit, is racy, and often very amusing. The working of the mind of the ordinary country doctor, who plays a big part in the story, could only have been shown by an experienced hand guided by inside knowledge and deep human sympathy.

Messrs. Duckworth's little 2s. series of "Great Lives" has already included three members of the medical profession who won fame far outside the practice of our profession—*Keats*, by B. Ifor Evans, *Huxley*, by E. W. MacBride, and *W. G. Grace*, by Bernard Darwin. One of the latest volumes of the series is a brief biography of *Florence Nightingale*, by D. LAMMOND. This will no doubt be welcomed by readers who have not the time or opportunity to read Sir E. T. Cook's authoritative *Life*, or its abridgement by Rosalind Nash, which appeared ten years ago.

Preparations and Appliances

"SUNIC" SUPER ROENTGEN POWER UNIT

Many improvements are incorporated in the "Sunic" super Roentgen power unit, a diagnostic apparatus which is the subject of a brochure issued by Watson and Sons (Electro-Medical) Ltd., of Sunic House, Parker Street, Kingsway, W.C. The unit embodies a shock-proof *x*-ray tube, a high-tension transformer, and a control table. The tube is of very compact design, similar to all the "metalix" line-focus tubes (it emanates from the same research laboratories), but it has massive anode-cooling and fan-cooling in addition, to improve its thermal efficiency, and also a grid action, to improve its radiographic efficiency—that is to say, a method of diaphragm control increases the blackening of the film per milliampere at any given kilovoltage. The high-tension transformer is also of shock-proof construction throughout, and its design has been assisted by research on new insulating materials. The control table has been arranged with a view to securing a uniformly high standard of radiographic results with maximum convenience to the operator. The principal innovations in the table are the automatic control for regulating the current, and the valve time-switch, which does not depend on any clockwork mechanism, but is based on an ingenious electrical circuit employing a relay tube. The wiring of the timing circuit is so arranged that by the use of a special hand-switch, together with a Potter-Bucky diaphragm, the diaphragm itself can be made to operate the exposure. It is claimed that no fewer than eighteen new constructional devices have been embodied in the one machine. It may be said to be an example of the application in radiology of what in transport is called "streamlining." A distinguished radiologist the other day publicly congratulated himself on belonging to a generation which had known nothing but good apparatus of increasing facility. Such facility appears to be very much furthered by a unit designed for the most efficient working combined with almost unbelievably small dimensions, and enabling every couch and screening stand to be separately energized and equipped with a self-contained installation.

ACID SODIUM PHOSPHATE SOLUTION

Phospho-soda (Fleet) is a concentrated watery solution of acid sodium phosphate (60 grains per fluid drachm of solution). Amongst other purposes it is recommended as a laxative or purgative, for rendering the urine acid, and for use with a duodenal tube for the purpose of causing evacuation of the gall-bladder. The makers (the Anglo-French Drug Co., Ltd.) claim that its action in this last respect is superior to that of olive oil or of concentrated magnesium sulphate.

THERAPEUTIC ACTIONS OF MARMITE

We have received from the Marmite Food Extract Co., Ltd., a pamphlet describing the therapeutic actions of marmite. A commendable point about this publication is that all the claims made are supported by references to articles which have appeared in well-known journals. Marmite is an autolysed yeast extract, and biological assay has shown that it contains 30 international units of vitamin B_1 per gram, which is a higher content than that found in fresh yeast. The pamphlet gives full references to recent work on the curative actions observed with marmite, and in most cases these actions are due to its content of vitamins B_1 and B_2. The curative action in tropical macrocytic anaemia, which is one of the most striking therapeutic effects produced by marmite, is, however, an exception to this rule, because it is not produced by dried yeast and must be due to some constituent in marmite other than the vitamins.

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SATURDAY, NOVEMBER 23rd, 1935

MALARIA IN CEYLON

Seldom has medical news from the Tropics excited more general interest in this country than that which has recently been coming through regarding a great epidemic of malaria in Ceylon. For some time the only information available was from short references in the newspapers. In March of this year, however, a very interesting account of the epidemic[1] was given in a lecture at the London School of Hygiene and Tropical Medicine by Dr. V. B. Wigglesworth, lecturer in the department of entomology, who whilst on a tour to India and other Eastern countries under the auspices of the School had been able, through the courtesy of the medical authorities in Ceylon, to see something of the epidemic and the relief measures undertaken against it. Since then till recently little further information has been received, so that it is of particular interest to note the publication in September of this year, by the Government of Ceylon, of two sessional papers[2] giving very complete particulars of the epidemic. The first of these, No. XXII–1935, with a supplement containing numerous excellent maps, is the report of the Director of Medical and Sanitary Services, Ceylon (Dr. R. Briercliffe). The second, No. XXIII–1935, is by Colonel C. A. Gill, I.M.S., who, as expert adviser on malaria to the Ceylon Government, deals not only with the nature, causes, and consequences of the epidemic, but also in Part II of his report provides a scheme for the future control of malaria in the island. Almost coincident with the appearance of these two valuable reports has been held an important discussion at a combined meeting of the Sections of Epidemiology and of Tropical Diseases of the Royal Society of Medicine, at which, following a paper by Dr. R. Briercliffe and Sir Weldon Dalrymple-Champneys, read by the latter, various speakers, including Dr. P. H. Manson-Bahr, Dr. Wigglesworth, Colonel Gill, Colonel S. P. James, and Professor W. Schulemann from Elberfeld, considered different aspects of the outbreak. (The proceedings are reported this week at page 1014.) A still further paper, dealing especially with the causation of the epidemic, is also to be read shortly by Colonel Gill, the author of the second report, at the January meeting of the Royal Society of Tropical Medicine and Hygiene, where further discussion may safely be predicted. With the wealth of information and statistical and other data now available it is doubtful if ever before has any tropical epidemic been so quickly and effectively reported upon.

The area of the epidemic was somewhat over 5,000 square miles, the affected tract being almost entirely in the wet zone, or that portion of the island which normally receives a heavy rainfall from the south-west monsoon. This is the most densely inhabited part of the island, containing more than half of the total population. In the earlier part of the year preceding the epidemic the area suffered severely from drought due to partial failure of the monsoon, and the rivers within it and their tributaries were unusually reduced in volume, so that extensive portions of river bed were everywhere covered with innumerable shallow pools. Conditions were thus brought about extremely favourable to the breeding in large numbers of *Anopheles culicifacies*, the only anopheline known to be commonly concerned in the spread of malaria in Ceylon. As shown by dispensary returns epidemic conditions displayed themselves in a few localities as early as the end of September, 1934, but the figures in general indicate a rise in the attendances from about the last week in October, reaching a maximum towards the end of December of that year. There were, however, two further peaks of renewed intensity: the so-called second wave in April, 1935, and a still further wave only reported recently. This last, fortunately, appears already to have declined, and serious fears for further activity of the epidemic are no longer held. Altogether some 3,000,000 dispensary attendances above the normal were recorded in the first six months of the epidemic, and it is estimated that at least half the population in the epidemic area contracted malaria and attended a dispensary at least once for the disease. Deaths in the first six months were some 60,000 above the normal, or about twice the number ordinarily occurring. The returns for those districts most severely affected, notably the districts of Kurunegala and Kegalla, showed, however, during the peak of the epidemic a mortality of six to eight times the normal. The highest mortality in most areas occurred in January, 1935.

Knowledge of the anophelines of the island, the distribution of spleen rates, and other data relative to malaria in Ceylon prior to the epidemic has been due chiefly to the work of Mr. H. F. Carter, malariologist to the Government of Ceylon, and his assistants, K. J. Rustomjee and E. T. Saravanamuttuu (Sess. Paper VII of 1927). An important element in the causation of the present epidemic is considered to be the great increase in the numbers of the carrier species *A. culicifacies*, the breeding of which in the area, as we have noted, was favoured greatly by the drought. Also of importance is the relative state of immunity against malaria of the population at the time of the epidemic. The spleen rates show that the northern

[1] Reported in abstract in this *Journal*, March 23rd, 1935, p. 590.

[2] Ceylon Government: Sessional Paper XXII—1935. The Ceylon Malaria Epidemic, 1934–5. Report by the Director of Medical and Sanitary Services. With Supplement: Maps and Charts. Sessional Paper XXIII—1935. Report on the Malaria Epidemic in Ceylon in 1934–5. Together with a Scheme for the Control of Malaria in the Island.

portions of the island, which were relatively unaffected by the epidemic, are hyperendemic. A large part of the wet zone, on the contrary, has very low spleen rates (under 10 per cent.). It would appear that the epidemic occurred in the main where the spleen rate was intermediate in character, possibly indicating that a low immunity, along with a certain amount of pre-existing infection, was most favourable to epidemic conditions.

Of great importance have been the measures necessary to treat the sick and relieve distress due to these unprecedented conditions. The drug chiefly used throughout the epidemic was quinine, of which 33,868 lb. (over fifteen tons), with the addition of a million and a half 3, 4 and 5 grain tablets (about another 1,000 lb.), was issued in approximately the first six months of the epidemic. Of plasmoquine 83,000 tablets, and of quino-plasmoquine, 45,100 tablets, were issued for use in hospitals. Atebrin was used fairly extensively, 179,000 tablets being supplied to the hospitals. An impression was at one time prevalent in this country that the epidemic was being made the occasion for a large-scale " test " of the efficacy of the last-mentioned drug, and also that the intravenous and intramuscular injection of atebrin musonat, a more soluble preparation, constituted a " new " and more efficacious form of treatment by this drug for general application in the field. The report of the Director of Medical Services shows that these were largely misconceptions. The position rather is that both quinine and atebrin are drugs of proved efficacy, whose particular merits in particular circumstances have still to be worked out under conditions of controlled experiment, though much was learnt about these drugs in the course of valuable observations made in the present epidemic. It is of interest to note that Professor Schulemann, in his remarks at the discussion last week, particularly stressed the undesirability of giving either atebrin or quinine by any other method than perorally when there is no special reason for doing so.

In no particular have the facts which have emerged in connexion with the epidemic been more agreed upon than in general acknowledgement and appreciation of the effectiveness of the measures taken by the medical authorities under the calamitous conditions introduced by the epidemic. Speaking on this point, Colonel Gill stressed the value of such features as provision of free meals at dispensaries, special food for undernourished children, and other similar measures of a nature generally helpful to the stricken population which were adopted by the medical authorities. The excellence of the plans for the automatic evacuation of serious cases from the dispensaries to the hospitals was also commented on. Altogether the medical authorities appear to have dealt very effectively with a diffcult and alarming contingency, and with great energy and resourcefulness to have brought to bear a perfection of organization which has earned the admiration of all who have had an opportunity of seeing the arrangements at work.

THE CONTROL OF RABIES

It is just fifty years since Pasteur introduced the prophylactic treatment of rabies, and the occasion has been suitably commemorated by the issue of a special number of the *Annales de l'Institute Pasteur* (October 25th, 1935). There are good reasons for regarding Pasteur's work as one of the greatest achievements in medicine, both because it involved a tremendous but correct assumption then incapable of proof—namely, that the disease was due to an ultramicroscopic organism—and because the method of prophylaxis was so soundly based and so practically efficient that the ensuing fifty years, with all the greater knowledge that they have brought, have seen it improved only in detail. That this country should be entirely free from rabies, thanks to quarantine regulation for animals of which only the ignorant complain, should not blind us to the fact that this disease is an ever-present if remote danger over a very large part of the world, including countries near at hand, where constant vigilance and the provision of facilities for treatment alone prevent a considerable mortality from it. It may be news to some that the disease exists in the United States, but a recent report by Olesen[1] is entitled " The Control of Rabies in New York City," and contains facts and opinions of no little interest. All dogs in public places in New York are subject to a muzzling order which is apparently not by any means strictly observed, and all dog bites have to be notified, whereupon the offending dog is secured if possible and kept under observation for seven days, while the bitten individual is subjected to antirabic treatment not only in cases when the dog concerned is rabid, but in others when the animal cannot be traced, especially when the bites are severe or involve the face. During last year no fewer than 19,443 dog bites were notified in New York and forty-four rabid animals were discovered, this being a much smaller figure than that given for the period 1926–8, when the numbers ran into several hundreds. That there were only two deaths from rabies during last year and none during the three preceding years is evidently due to the efficiency of the preventive service ; from forty to over one hundred deaths are recorded for the whole of the U.S.A. for each year since 1908. The antirabic service is expensive, and Olesen suggests that dog licences should be made to pay for it ; these are at present issued under a charter from the State of New York by the American Society for the Prevention of Cruelty to Animals, who use the proceeds for their own purposes, a curious arrangement vaguely reminiscent of the royal granting of monopolies in Elizabethan England.

A review of the recent literature of rabies by McKendrick[2] is of more comprehensive interest. It includes an admirable discussion of the merits of different variants of Pasteur's prophylactic method, based largely on the important and extensive data

[1] *Public Health Reports, U.S.A.*, 1935, 1, 1087.
[2] *Tropical Diseases Bulletin*, 1935, xxxii, 605.

published this year by Van Stockum, on the basis of experience in the East Indies. This author concludes that the immunizing power of carbolized virus is inferior to that of preparations containing living but attenuated virus, but McKendrick disagrees with her interpretation of her own data. Opinion as to the causation of " paralytic accidents " following antirabic treatment appears to be veering again towards the conclusion that these are due to the action of the living virus itself, and do not represent a mysterious effect exerted by the constituents of injected nervous tissue, as was suggested by Stuart and Krikorian. This complication is fortunately very rare ; twenty-two cases only are recorded in the reports of Pasteur Institutes for 1932 among 115,959 treated persons. These are only some of the principal features in the recent literature of rabies, a subject in which our lack of interest is due to our isolated position and the measures taken to protect it. Those whose work will take them to other less fortunate parts of the world will do well to familiarize themselves with at least the broad principles of antirabic control and the practical measures by which they are given effect.

THE ADRENAL CORTEX AND INFECTIONS

That some close connexion exists between the endocrine system and the mechanisms for combating infections is more a matter of conviction than of demonstrated fact. Experimentation in this field is very difficult. It has long been known that general infections lead to very pronounced changes in the cortex of the suprarenal glands. Outstanding among these changes are diminution in size and quantity of the lipoid droplets: later the cells vacuolate and degenerate ; and subsequently may be completely destroyed, the nucleus breaking down, and local circulatory disturbance may lead to infarction. How far the depressed muscular state during and after infections may be correlated with changes of this sort is not yet firmly established, but, having regard to the points of contact with the symptoms of Addison's disease, it seems not improbable that infections lead to a diminished secretion of the cortical hormone. In a recent paper S. Thaddea[1] refers to the results of experiments with adrenalectomized animals which were exposed to various toxic agents. Such animals show in general a lowered resistance to the toxins of diphtheria and tetanus, and to staphylococci, streptococci, and *B. typhosus*. In the intact animal diphtheria toxin changes both the morphology and the chemical constitution of the adrenal cortex, a greater or less disappearance of cholesterol occurring according to the degree of intoxication. Even the natural resistance of the rat to *Bartonella muris rattis* is much diminished by adrenalectomy, and so is tolerance to histamine, morphine, and other chemical poisons. Experimental intoxication of the guinea-pig with diphtheria toxin leads to some striking changes in carbohydrate metabolism—creatine appears in the urine, probably as a result of exhaustion of glycogen supplies in both liver and muscles ; and lactic acid is diminished in the muscles both at rest and after rigor has set in. These serious changes can be corrected by treatment with the hormone of the suprarenal cortex, if combined with rather large doses of ascorbic acid (vitamin C). Further, guinea-pigs treated with 0.1 c.cm. per day of a broth culture of *B. diphtheriae* all die in about fifty hours ; if, however, simultaneously they receive injections of cortical hormone and ascorbic acid, the pathological findings obtained in the controls (haemorrhages and necrosis of suprarenal cortex) do not appear, and the animals survive. This effect is not obtained if previously the reticulo-endothelial system has been injured by the intravenous injection of electrocollargol, thus showing that the therapeutic success was of an unspecific nature. Nevertheless, as pointed out by Thaddea, these results give us an important lead in the therapeutics of infectious diseases. In a very close examination of a case of Addison's disease which, as a result of an attack of influenza, developed the signs and symptoms of an Addisonian crisis, the same author was able to show that to a very great extent energetic treatment with cortical hormone could re-establish the more or less satisfactory condition of the patient before the infection. Supported as it was by considerable chemical data, this work would indicate that in an acute infection there is either a great diminution in the residual power of secretion of the adrenal cortex in Addison's disease, or that, as in the case of diabetes, there is an inactivation of the secretion, thus leading to a greater hormonal requirement. The mechanism of action is obscure, but from the point of view of treatment of post-infective (particularly post-influenzal) asthenia it is well worth considering whether it may not be rational to utilize preparations of cortical hormone alone or in combination with considerable quantities of vitamin C.

[1] *Klin. Woch.*, September 7th, 1935.

CLASSIFICATION OF THE CHOLERA GROUP OF VIBRIOS

It has been recognized for some time now that the identification of *Vibrio cholerae* did not rest on too satisfactory a basis. This dates really from as far back as 1905, when the famous El Tor vibrios were first isolated from the stools of pilgrims passing through the quarantine station there, and this feeling of uncertainty has since been intensified by the isolation of inagglutinable vibrios from cases of clinical cholera and a repetition of the El Tor findings. In consequence of this the Public Health Bureau of the League of Nations recently decided to set in train investigations in various laboratories throughout the world, the object of which was to produce, if possible, an agglutinating serum capable of picking out with certainty the cholera vibrio. The State Serum Institute, Copenhagen, among others, was asked to collaborate in this work, and Dr. Borge Heiberg undertook the investigation. His findings are now published in the form of a monograph on the classification of *Vibrio cholerae* and the cholera-like vibrios.[1] This represents some two years' work, and comprises the study of about 400 strains of vibrio, which came from various parts of the world and included

[1] *On the Classification of the Vibrio Cholerae and the Cholera-like Vibrios.* By Borge Heiberg. Translated from the Danish by Dr. Gerda Seidelin Schnohr, with the assistance of Dr. Gregory Kayne. Copenhagen: Arnold Busck.

inagglutinable vibrios isolated from clinical cholera, a number of El Tor strains, and a few water vibrios, as well as many examples of typical *V. cholerae*. Dr. Heiberg realized that his task was of necessity limited to seeing if some satisfactory classification of the available material could be arrived at ; any attempt to decide which types of vibrio were responsible for clinical cholera would have to be undertaken by those in close contact with clinical material. Briefly, his conclusions are as follows. On the basis of biochemical tests made with three fermentable substances—mannose, saccharose, and arabinose—the vibrios fell into six groups. The first group—Type I—comprised 245 of the strains examined, and with one exception were agglutinated by an anticholera serum. Some of the El Tor strains belonged to Type I. An antigenic analysis of the Type I vibrios revealed two antigenic groups: one, the larger, containing an antigenic factor A, and a smaller group of strains possessing two antigenic factors, AB. These antigens belong to the heat-stable O class. How far Dr. Heiberg's findings will agree with those of other investigators remains to be seen, but his claim to the possibility of an accurate biochemical classification is not in keeping with the recent work of Doorenbos or of Gardner and Venkatraman.

BRITISH HOSPITALS ASSOCIATION

The annual report of the British Hospitals Association, which covers its working to June, 1935, shows that out of about 1,000 voluntary hospitals in the country 712, representing 88 per cent. of the total beds, have taken up membership. The report contains a record of useful and varied work in connexion with parliamentary measures and administrative detail. On the subject of provident schemes the council of the B.H.A. commends the model scheme prepared by the British Medical Association, while not suggesting that all schemes must conform to one pattern. The treatment of fracture cases in voluntary hospitals, which has been brought to the notice of the council by several of its regional committees, is to form the subject of future consideration. It is mentioned that the sections in the Road Traffic Acts which deal with hospitals still leave a good deal to be desired before hospitals receive adequate remuneration for the work they do, and the council will at the proper time take such steps as may be deemed advisable in hospital interests. It is also proposed to take up again the suggestion that testamentary gifts to hospitals should be exempted from the 10 per cent. legacy duty ; previous attempts to induce the Chancellor of the Exchequer to grant this exemption have been unsuccessful, but the more favourable state of the national finances encourages new hope for this concession. At the recent annual meeting held at Leamington two resolutions were carried which will form the basis of future action. One of these called for the setting up of a commission of inquiry as to whether, in view of recent legislative and social developments, any steps should be taken to promote the interests of voluntary hospitals, develop their policy, and safeguard their future ; the other was a request to explore the possibilities of a scheme for the standardization of hospital equipment and group buying. Next year's annual meeting will be held in Edinburgh. Sir Arthur Stanley has been re-elected president of the British Hospitals Association, Lord Stanmore and Sir Ernest Morris treasurers, and Mr. R. H. P. Orde honorary secretary.

JONATHAN HUTCHINSON—OPHTHALMOLOGIST

In a series of biographical studies in the history of ophthalmology that Burton Chance of Philadelphia is contributing to the *Archives of Ophthalmology*, Sir Jonathan Hutchinson's work comes in for notice.[1] The life and work of this gaunt, quiet Quaker ran an even tenor of continued devotion to his chosen career. His valedictory address at the Ophthalmological Society was something of a confession of faith. Never a laboratory man, he insisted on the " great value which attaches to all case narratives when really complete—that is, which conduct the patient either to recovery or death." Admitting that he had not " the slightest fear of over-production," he insisted that " it is not safe to delay the recording of experience or the enunciation of thought, which, for anything we know, may prove of great value to those who follow us." He himself lived up to his insistence to " work while it is day," though it must be added that it was day to Hutchinson when it was night for many others. A fine tribute from his teacher, Sir James Paget, is worth recalling in this connexion. Paget related with pride that even if he did not help Hutchinson in his studies in syphilis, he at least did not interfere ; where he saw nothing but confusion, Hutchinson saw light coming. Hutchinson's work on syphilis of the eye is enshrined in the current conception of interstitial keratitis. Before Hutchinson, " scrofulous corneitis " was a term that did duty for a number of corneal disturbances. The greatest " generalized specialist," as Osler called him, could not but draw attention to the general disturbances associated with the eye condition. Of the Hutchinson tetrad, the description of what is now known as " Hutchinsonian teeth " met with most incredulity. His contemporaries could indeed recognize the stigmata of congenital syphilis in the newborn, but the delayed manifestation eluded them. To test his claim regarding the specific nature of the peg-shaped teeth a committee of the Pathological Society was set up, but while finding Hutchinson's contentions borne out by the cases he had submitted for examination, the committee hesitated to express an opinion without further evidence. It is perhaps difficult for a generation which has learned to rely upon the Hutchinson tetrad and the Wassermann reaction to appreciate the significance of Hutchinson's work in the diagnosis of delayed manifestations of congenital syphilis. But it is certainly a fact that his contemporaries very soon learnt to realize the worth of this man. Had his contributions to ophthalmology done nothing more than elucidate interstitial keratitis—and incidentally little has been added to or subtracted from what he wrote on the subject—Hutchinson would still rank amongst the immortals. But his influence spread far wider. It was he who infused into British ophthalmology its characteristic concentration on clinical problems. It must be admitted that he was fortunate in his pupils as well as in his teachers, for

[1] *Arch. of Ophthal.*, 1935, xiv, 203.

Edward Nettleship and Waren Tay were worthy disciples. To follow Hutchinson in his maze of clinical contributions is to view a cross-section of ophthalmology during the brilliant years of the second half of the nineteenth century; to concentrate upon his major contributions is to gaze upon one of that select band of men who in the phrase of Victor Hugo are "the lighthouses of mankind."

THE GRANCHER SYSTEM

The attempt to perpetuate a name in a medical term not seldom leads to a faulty connotation. Sound clinical observation caused Grancher in 1903 to initiate the removal of children from tuberculous parents. But the restriction to those over the age of 5 years, and the choice of boarding out with farmers, were based less on accurate knowledge of the disease than on the desire to improve the hygienic environment of the children and to counteract the increasing depopulation of the countryside. Of recent years the method has been stimulated to a development far beyond the limits set by Grancher. This is due to appreciation of the fact that contact takes the heaviest toll in infancy and to the differentiation between infection and disease (even though the line of demarcation between the two is not clearly defined). Hence the term "Grancher system"—extensively employed in England and America—makes for a *suggestio falsi*, a putting of the part for the whole. Moreover, it is generally assumed that the results of the "system" have been uniformly good in France, and that removal of children from "tuberculous households" is not practised in England. Both assumptions are not surprising. Knowledge of the practice in France is obtained from annual reports written with an eye to lay consumption and from short accounts with tendentious statistics by founders and administrators. In England, information about the 2,500 children removed from their homes in the London area in the last twelve years is very meagre, and consists of little more than references in the annual reports of the Invalid Children's Aid Association and of the London County Council. A recently published report[1 2 3] by Dr. G. Gregory Kayne, based on personal investigation of the organizations existing in France and Belgium, is therefore of interest. The first part of the report summarizes the work on which the principle of removal from home or "separation" rests, and gives conclusions as to when and under what conditions it should be carried out. There follows a detailed account of the associations in France, Belgium, and Canada dealing with these children, and the author examines the results as far as is practicable. The remainder of the report consists of a discussion on the relative advantages and disadvantages of the modes of separation (for example, boarding-school, nursery, foster-families, etc.). In view of the objections raised by opponents of the method on grounds of sentiment and interference with family life, Dr. Kayne's detailed treatment of the difficulties with, and effects of, separation on children, parents, and foster-families is of particular importance. The figures given by the author show that the practice even in France is not extensive enough to affect materially the anti-tuberculosis problem, nor are the results (very difficult to assess statistically) as favourable as is generally supposed. Separation of infants is, indeed, associated with a mortality appreciably higher than the general infantile mortality. He therefore recommends that all factors should be weighed before the removal of a child is decided upon, which should only be resorted to when treatment of the patient and taking of precautions in the home cannot be expected to give satisfactory results. But there still remains a large group of children for whom separation is essential, especially in infancy. Dr. Kayne considers that institutional separation—provided certain conditions are fulfilled—is much preferable for infants, although boarding-out in the country is still the method to be advocated for older children. It is evident that caution must be observed in the application of methods and results from country to country. Nevertheless, this report should form a useful basis of reference to authorities planning to establish what must be considered an essential part of any complete anti-tuberculosis scheme.

[1] *British Medical Journal*, 1935, i, 692.
[2] *Arch. Dis. in Child.*, 1935, x, 157.
[3] *Tubercle*, 1935, xvi, 433, 494, 541; 1935, xvii, 10.

SPECIALIST WORK IN THE R.A.M.C.

A step of interest and importance to young medical practitioners to whom a Service life makes an appeal has recently been taken. Young officers in the Royal Army Medical Corps, temporary or permanent, will in future have an opportunity of specialist work, with appropriate grading and pay, provided that they possess the necessary experience and qualifications. At present such posts are reserved for those who have undergone a specialist course at the Royal Army Medical College. In future junior officers who have acquired special knowledge or higher qualifications before entering the Service may secure a specialist appointment soon after entrance into the Service and the completion of the junior course at the college. This development will go far to dispel the doubts of those whom a Service life attracts but who desire, above all, adequate opportunity for professional work calling for skill and experience beyond the ordinary. The standard required will be high, but the change does mean that the Army is now in a position to offer specialist work with extra pay to any young officer of the R.A.M.C. who proves himself capable of doing it.

The President and Council of the Royal Society have awarded the Davy medal to Professor Arthur Harden, F.R.S., of the Lister Institute, for his distinguished work in biochemistry, and especially for his fundamental discoveries in the chemistry of alcoholic fermentation. Sir William Bragg has been nominated as president in succession to Sir Frederick Gowland Hopkins; and Professor E. D. Adrian, Sir Patrick Laidlaw, and Mr. Wilfred Trotter have been recommended for election to the Council.

We regret to announce the death, on November 19th, at the age of 66, of Mr. Dan McKenzie, consulting surgeon to the Central London Throat, Nose and Ear Hospital.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the nervous system met with in general practice.

DISSEMINATED SCLEROSIS

BY

W. RUSSELL BRAIN, D.M., F.R.C.P.

Disseminated sclerosis is probably due to an infection of the nervous system. Inflammatory patches in which the myelin sheaths of the nerve fibres are destroyed occur mainly in the white matter of the brain and spinal cord, including the optic nerves. These patches appear at intervals, a fresh patch leading to new symptoms or to an exacerbation of existing symptoms, while during the earlier phases of healing and scarring the patient improves, often strikingly. The appearance of patches may be so rapid that the patient dies within three months of the first symptom, or the intervals between the outbreaks may be so long that there is no substantial disablement at the end of twenty-five years. The nature of the symptoms and signs depends upon the situation of the patches in the nervous system. A common early symptom is acute unilateral retrobulbar neuritis, which leads to primary optic atrophy characterized by pallor of the optic disk, especially in its temporal half. The brunt of the damage usually falls upon the pyramidal tracts and the cerebellar connexions. The principal manifestations of the disease therefore are weakness of the upper motor neurone type and incoordination. These find expression in nystagmus, slurred speech, intention tremor, a spastic and ataxic gait, increased tendon reflexes, and bilateral extensor plantar responses. The abdominal reflexes are usually lost at an early stage. Impaired control over the bladder leading to precipitancy or delay in micturition is a common early symptom. Since the cause of the disease is unknown treatment is necessarily empirical, and it is clearly very difficult to judge the value of any method of treatment for a disorder which runs such a variable course.

General Management

Rest is essential during an exacerbation, and if this is at all severe the patient should be kept in bed until there are signs of improvement, which usually takes several weeks. In the intervals of remission the patient should be encouraged to live a normal life as far as his disability allows, always, however, avoiding carrying exertion to the point of fatigue. One should aim at postponing as long as possible the ultimately inevitable bed-ridden state, and suggestion and encouragement will be a great help in this. Anything which may be impairing the health should receive attention, and if there are septic foci in the nose, throat, or teeth these should be treated, but with reasonable conservatism, since the wholesale extraction of infected teeth in one operation, for example, may lead to an exacerbation of the disease.

Treatment with Drugs

Arsenic in both its organic and its inorganic forms has long been part of the routine treatment. Its value is a matter of personal impression. It may be prescribed in the form of 3 minims of liquor arsenicalis in half an ounce of water three times a day after meals. This mixture should be given for from six to twelve months at a time, omitting it, however, for one week in every four. Larger doses are sometimes administered, but do not seem to be of greater benefit. Organic compounds of arsenic are given on the same lines as for the treatment of neurosyphilis, though usually in smaller doses and shorter courses. Novarsenobillon, silver salvarsan, and sulfarsenol all have their advocates. Novarsenobillon should be injected intravenously in doses of 0.45 gram for a male and 0.3 gram for a female patient. Silver salvarsan is prescribed in doses of 0.2 gram for a male and 0.15 gram for a female patient. Whichever drug is used, an intravenous injection is given weekly for four to six weeks, and this course is repeated at intervals of about six months. Sulfarsenol is administered in doses of 0.45 gram to a male and 0.3 gram to a female patient, either intravenously or into the deep subcutaneous tissues, in courses at the same intervals. During an exacerbation iodide may usefully be prescribed for a few weeks, either alone in the following mixture:

℞ Pot. iod. ... ... gr. v–x
Aq. menth. pip. ... ... ad. ℥ ss
t.d.s.

or with the addition of a drachm of liq. hydrarg. perchlor. to each dose.

Good results have recently been claimed for the prolonged administration of quinine hydrochloride in doses of 5 grains three times a day by the mouth. Liver extract has also been advocated, the equivalent of half a pound of liver being taken daily for an indefinite period.

Treatment By Artificial Pyrexia

Artificial pyrexia sometimes leads to striking temporary improvement, and is most likely to be effective in rapidly progressive cases, especially in young adults. Various methods of inducing pyrexia have been used, including malaria, the subcutaneous and intravenous injection of foreign protein, and physical agencies. A convenient and safe method is the intravenous injection of "pyrifer," a *B. coli* vaccine. This is supplied in graduated doses, and the patient receives a dose intravenously on alternate days three times a week, six to ten injections being given. The rise of temperature extends over several hours, and usually reaches about 103° F. The patient must be kept in bed during the course of injections.

Treatment of Special Symptoms

During an attack of acute retrobulbar neuritis the affected eye should be covered with a shade or a dark glass, and the eye should be rested as much as possible. Ataxy of gait may be diminished by suitable re-educational exercises, such as Fraenkel's exercises. When, owing to spasticity of the calf muscles, there is marked plantar flexion of the foot a surgical boot with a toe-raising spring may make walking much easier. Frequency and precipitancy of micturition may be relieved by small doses of belladonna, such as half a grain of dry extract in a pill two or three times a day. During the late stages of the disease the skin, the bladder, and the rectum will require the attention necessitated by severe degrees of paraplegia (see article by Dr. Henry Cohen, October 5th, p. 633).

MEDICAL USES OF RADIUM

THE MEDICAL RESEARCH COUNCIL REPORT

As foreshadowed in its immediate predecessor the thirteenth annual report of the Medical Research Council on the medical uses of radium[1] differs from its forerunners in the relative space allotted to clinical and to experimental work. In previous reports the clinical section has formed by far the larger element; this year the two sections are of approximately equal length. It must not be assumed from this that less attention is being given to clinical investigation, but rather that clinical methods are now becoming, in many cases at least, more or less standardized, so that there is less necessity for detailed descriptions of technique—and it is only fair to say that this standardization of methods is in no small degree due to the Medical Research Council. The experimental section, which ranges from pure physics to the action of radiations on cell division, contains much that is of interest to medical men.

Artificial Radioactivity

Of the purely physical researches described in this section there are two of special medical interest. The work of Dr. Moon and Mr. Tillman, carried out at the Imperial College of Science and Technology, bears upon the question of artificial radioactivity, and deserves comment in view of its therapeutic possibilities.

It is well known that when the metal beryllium is powdered and mixed with radium emanation (radon), neutrons are produced owing to the bombardment of beryllium nuclei by alpha particles given off by the radon. Such neutrons, under suitable conditions, may enter the nuclei of a great many ordinarily non-radioactive elements such as sodium. Consequently these elements are rendered radioactive for a time which varies in each individual case, but is always short compared with that of radium or even radon. Generally speaking, these artificial radioactive forms (isotopes) of elements are produced in such infinitesimal quantities that special apparatus is necessary for their detection. Dr. Lawrence, working in the United States and employing a different method, has obtained a radioactive form of sodium which decays to half its initial strength in fifteen hours, and his results have led him to hope that "radio-sodium" will soon be produced in sufficient quantities for it to be used in certain biological investigations on the action of radiations. From this it has been hastily assumed that the new substance is likely to displace radium for therapeutic purposes. Space does not allow of a discussion of the matter, but it may be pointed out that we are only just beginning to know a few facts about the methods by which radium and x rays produce their undoubted therapeutic effects. Even if "radio-sodium" is produced in sufficient amounts, it will need years of research before enough is known about its method of action for it to be safely employed for therapeutic purposes.

The other physical problem of immediate practical interest is that of investigating the applicability of the "γ unit" or "röntgen" to radium (gamma ray) therapy. Exact methods of dosage are an obvious necessity, and Dr. Mayneord at the Cancer Hospital contributes much new and valuable information on the subject. A large amount of research work has also been carried out with a view to elucidating the mode of action of radiations on living cells and to determining various conditions by which these actions can be modified. It will be seen that all these problems are intimately associated with the fundamental principles which regulate—or should regulate—radiation therapy. An interesting and practical fact is that tissue removed by electrocoagulation is capable of yielding very fair histological specimens, as is shown in two full-page illustrations contributed by the pathological department of the Middlesex Hospital.

[1] *Medical Uses of Radium.* Summary of Reports from Research Centres for 1934. Medical Research Council, Special Report Series, No. 204. London: H.M. Stationery Office. 1935. (1s. net.)

Treatment of Malignant Disease

Striking progress is being made in the radiation treatment of malignant disease, and the number of cases treated by radiological methods continues to increase. The relative frequency of surgical and radiological treatment is shown in the accompanying table, taken from the report (page 7).

Method	Number Treated (1934)	Percentage of Total Treated
Surgery alone	612	24.7
Radium alone *	1,145	46.3
X rays alone	251	10.1
Surgery, radium	218	8.8
Surgery, x rays	106	4.3
Radium, x rays	118	4.8
Surgery, radium, x rays	25	1.0
By all methods	2,475	100.0

* Treatment by radium alone may involve surgery of access.

Taking all the figures from the various centres for the years 1930–4 inclusive, a total of 10,430 cases of malignant disease have been treated; of these, 2,887 (28 per cent.) were treated by surgery alone, while 4,560 (44 per cent.) were treated by radium alone.

Cancer of the Cervix.—Attention should be drawn to an unobtrusive paragraph of considerable importance which appears on page 7.

> "In last year's report reference was made to some outstanding differences in the results obtained in the treatment of cancer of the cervix uteri. As a result of these differences an inquiry was initiated by the Medical Research Council, and a questionnaire was circulated to the centres concerned. It may be possible from the information which is now being collected to give reasons for the differences in question."

It is common knowledge that results have been more satisfactory at some centres than at others, and it is obviously important that the information which has been collected by the Council should be published. Medical practitioners should be given authoritative information as to where their patients may obtain treatment with the best hopes of success. The task is unquestionably one of responsibility, but the Medical Research Council will no doubt act with judicial impartiality in reaching its conclusions, and issue, it is hoped, an interim report on the subject at the earliest possible moment. No special modifications of existing technique appear to have been adopted at any of the centres, but the necessity for early diagnosis and treatment is stressed. In spite of extensive propaganda it is still far too common for a patient to delay seeking advice until the disease has reached an advanced stage.

Cancer of the Breast.—The number of cases of breast cancer in which radiation treatment is employed continues to increase. It is very interesting to find that cases which from a purely surgical point of view would be regarded as hopelessly inoperable have been successfully treated by a combination of surgery, radium, and x rays: this was well exemplified in a case reported by the Birmingham General Hospital. The usual method adopted for the treatment of very advanced cases consists in local removal of the breast or growth, preferably by diathermy, while the cervical and axillary regions are irradiated by needling. Afterwards further radiation is given either by a sectional surface applicator or by high-voltage x rays. At St. Bartholomew's Hospital Mr.

Geoffrey Keynes reports a modification of his technique, which has been adopted for the past three years. When the growth is small it is excised by diathermy, and when it is large a local removal of the breast is carried out by the same means. The routine treatment by insertion of radium needles is carried out two or three weeks later. It is probable that the local excision reduces the incidence of recurrence in the breast by removing the gross part of the disease. The surgical unit at St. Bartholomew's Hospital has for several years been engaged upon a statistical survey of the results obtained by surgery alone and by interstitial radium treatment. The results show that the five-year survival rate is approximately the same in the two groups, and it was therefore evident that if improved results were to be achieved some modification of technique was essential. It was decided that the next form of treatment should consist of preliminary radiation followed by surgical removal of breast and glands.

Cancer of the Mouth, etc.—At the Aberdeen Royal Infirmary in cases of cancer of the lower lip interstitial radiation is regarded as the method of choice. At the Middlesex Hospital cases of malignant disease of the lip, mouth, pharynx, and oesophagus have been treated by the one-gram unit, as well as by moulded surface applicators. The question of the management of the teeth in these cases has always been a somewhat controversial one, and during the past year has received special attention in collaboration with the dental department. The present practice is for the mouth to be thoroughly cleansed and the teeth scaled. Obviously infected teeth are removed when at a distance from the growth, but wholesale extraction of teeth in close proximity to active ulceration is avoided, so to minimize the chances of implantation growth.

INTERNATIONAL CONGRESS OF SURGERY, CAIRO

The provisional programme for the tenth Congress of the Société Internationale de Chirurgie, to be held in Cairo from December 31st, 1935, to January 4th, 1936, was published in the *Journal* of February 23rd last (p. 374).

Dr. L. Mayer, the secretary-general, of 72, Rue de la Roi, Brussels, in a letter to the British delegate, Professor Grey Turner, states that already more than 450 members have enrolled for the congress; they will receive promptly their permits for reduced expenses, besides the reports by MM. Braine, Leriche, Ibrahim Pacha, and N. Makar. The Egyptian consulates in every country will visa passports to Egypt gratis on presentation of the member's card.

Dr. Mayer adds: "The Royal Egyptian Legation at Brussels and the members of the Egyptian committee for the next congress beg me to inform you that the present international situation will in no way affect the success of our tenth session. I have to inform you furthermore that on the occasion of the recent Congress of the Association Française de Chirurgie a week ago an official reunion of the members of the International Committee present in Paris also took place. At this meeting fourteen of our colleagues (including Professor Alessandri from Rome and Dr. Giordano, late president, from Venice) decided unanimously that, short of any unforeseen circumstances, the congress would take place in Cairo, as arranged, on December 31st, 1935. Should the international situation take any unexpected turn, the Bureau would advise all members of the changes made."

The general assembly, to be held in Cairo on January 2nd, will discuss mainly: (1) A modification of the statutes for converting the association into a legal society in accordance with the Belgian laws. (2) The nomination of a president for the 1938 congress. (3) The election of two vice-presidents to replace the late M. Recasens, and M. Schoemaker, who is to preside at the Cairo congress. (4) The place of the next congress and the choice of questions to be discussed. (5) The starting of a new international journal of surgery, to appear every two months, containing articles in five languages, and sent gratis to all members of the society.

THE GENERAL ELECTION

MEDICAL MEMBERS OF THE NEW PARLIAMENT

The following twelve medical men who were members of the last Parliament have been re-elected to the House of Commons at the recent General Election: Dr. J. Douglas Cooke, the Right Hon. Walter E. Elliot, Sir Francis Fremantle, O.B.E., Sir Ernest Graham-Little, Dr. H. C. Haslam, Dr. A. B. Howitt, C.V.O., Sir Henry Jackson, Bt., Dr. J. W. Leech, Dr. J. H. Morris-Jones, *M.C.*, Dr. Alfred Salter, Professor T. Sinclair, C.B. (unopposed), and Dr. J. H. Williams, J.P. (unopposed). No other medical candidate was successful.

SUCCESSFUL CANDIDATES: POLLING FIGURES

The following are the polling figures at all the contested elections in which medical candidates were successful.

HAMMERSMITH (SOUTH):	
Dr. J. Douglas Cooke (C.)	15,377
W. T. Adams (Lab.)...	9,309
GLASGOW (KELVINGROVE):	
The Right Hon. Walter E. Elliot (C.)...	15,100
H. McNeil (Lab.)	14,951
H. J. Rae (L.)	1,004
HERTFORD (ST. ALBANS):	
Sir Francis Fremantle (C.)	33,743
H. A. Franklin (Lab.)	16,233
LONDON UNIVERSITY:	
Sir Ernest Graham-Little (Nat.)... ...	8,958
Sir Norman Angell (Lab.)	3,918
LINCOLN AND RUTLAND (HORNCASTLE):	
Dr. H. C. Haslam (C.)	17,594
F. J. Knowles (Lab.)	7,982
READING:	
Dr. A. B. Howitt (C.)	27,540
Somerville Hastings, F.R.C.S. (Lab.)	22,949
J. W. Todd (L.)	2,685
WANDSWORTH (CENTRAL):	
Sir Henry Jackson (C.)	14,728
F. W. Davies (Lab.)...	10,405
NEWCASTLE-UPON-TYNE (WEST):	
Dr. J. W. Leech (C.)	25,526
W. Taylor (Lab.)	17,052
DENBIGH (DENBIGH):	
Dr. J. H. Morris-Jones (L. Nat.) ...	17,372
J. C. Davies (L.)	12,329
J. R. Hughes (Lab.)...	4,963
BERMONDSEY (WEST):	
Dr. A. Salter (Lab.)	12,603
F. Glanville (L. Nat.)	7,674

MEDICAL CANDIDATES NOT ELECTED

The following members of the medical profession were defeated at the polls. Several had previously represented or contested either the same or other constituencies. An asterisk denotes that a candidate sat in the last Parliament.

*The Right Hon. C. Addison (Lab.), Wiltshire (Swindon).
Dr. R. A. Barlow (L.), Edinburgh (Central).
Dr. C. W. Brook (Lab.), Smethwick.
Dr. C. R. Cooke-Taylor (L.), Camberwell (Dulwich).
Dr. L. Haden Guest (Lab.), Brecon and Radnor.
Mr. Somerville Hastings (Lab.), Reading.
Dr. Elizabeth Jacobs (Lab.), St. Marylebone.
Dr. S. W. Jeger (Lab.), St. Pancras (South-East).
Dr. D. McI. Johnson (L.), Bury.
Dr. R. A. Lyster (Lab.), Preston.
Dr. P. McDougall (Ind.), Manchester (Rusholme).
*Dr. W. J. O'Donovan (C.), Stepney (Mile End).
Lieut.-Col. W. C. Ross (L.), Manchester (Withington).
Dr. S. Segal (Lab.), Tynemouth.
Dr. Edith Summerskill (Lab.), Bury.
Dr. G. de Swietochowski (L.), Paddington (North).
Dr. W. S. R. Thomas (L.), Aberdeen and Kincardine (Central).
*Sir John V. Worthington (Nat. Lab.), Gloucester (Forest of Dean).

BIRTH CONTROL IN MODERN LIFE

DEBATE AT THE HUNTERIAN SOCIETY

The Hunterian Society staged a debate on birth control at a meeting held at Cutlers' Hall, Warwick Lane, on November 18th, with Dr. F. HOWARD HUMPHRIS in the chair.

A Bishop's Views

The debate was opened by the BISHOP OF ST. ALBANS, who gave reasons why he was entirely opposed to birth prevention by artificial means. He had a strong intuitive sense that the whole thing was wrong and degrading, and in all aesthetic and moral judgements the intuitive sense was not to be disregarded. He asked how many of those present would be happy to draw their income from investments in the manufacture of contraceptives or to have their daughters employed in their sale. Birth control was a deliberate frustration of the biological ends of Nature. In place of these artificial expedients he exalted self-control, the thing which differentiated man from the animal. He further asked why, if birth control appliances were permitted to the married, they should be denied to the unmarried. Was that audience willing to accept the social implications of such licence? Already, he understood, the numbers of professional prostitutes had decreased, not because of a higher morality in the community but because of the amateur, whose role was facilitated by these so-called "gifts of God." On patriotic grounds the Bishop deplored impending depopulation and the disappearance of large families; he was himself the seventh of ten children.

A Eugenist's Views

Dr. C. P. BLACKER, secretary of the Eugenics Society, defined birth control as the employment by either sex of means whereby it was intended that the act of coition might be rendered sterile. This definition excluded continence, and excluded also induced abortion, but it included the use of the so-called "safe period" and the employment of coitus interruptus and of mechanical or chemical contraceptives. The central question was whether it was possible for the average married couple to regulate the birth of an appropriate number of children by the method of abstinence. Did those who opposed the employment of contraceptives expect everyone to use abstinence? Did an impartial study of the sexual habits of married couples point to a conclusion that abstinence was universally practicable? He had been impressed lately by the number of books emanating from Catholic sources advocating the so-called "safe period," according to which the chances of conception were less during the week which immediately preceded the menstrual period than at other times in the cycle, and it was clear that Catholic doctors and priests were finding difficulties with their patients and penitents in this regard. He also noticed that in a recent Papal Encyclical "the allaying of concupiscence" was admitted as a secondary aim of marriage. Dr. Blacker quoted from a number of sociological studies, and also mentioned his own experience of practice as a psychiatrist to suggest that abstinence was not a universally possible measure for limiting fertility and spacing children. On the whole subject, while he was not prepared to say that birth control was not abused, he felt that we were destined to pass as a civilized community out of the phase of unplanned parenthood.

The "Safe Period"

Dr. HALLIDAY SUTHERLAND said that a better title for the debate would have been "That contraceptives are unnecessary in modern life." That would have cleared the issue, which had been confused by the reference to the "safe period." It was obvious that some form of birth control was necessary; the question was, what form of control? The "safe period," which did involve control for at least twelve days in each month, was infinitely superior to contraceptives, not only ethically but physiologically. By every method of artificial contraception the absorption of the hormones by the female was more or less prevented, and, apart altogether from pregnancy, these hormones were supposed to have a beneficial function. Moreover, from the practical point of view every method of artificial contraception was assailed by the advocates of another method as unsafe. Advocates of the check pessary, for example, would say that the Dutch pessary failed in 50 per cent. of cases. The latest method, now being followed in London, was the introduction of a silver ring, this involving a manipulation twice a month, before and after the period, with the woman under gas and oxygen. A gynaecologist's services were necessary on each occasion of introduction and removal, and he calculated that his fees would amount to £130 a year. "Why, one could educate and bring up a child on that!" Dr. Sutherland also declared that, despite the expenditure on ante-natal clinics, maternal mortality was rising, and he would be a strange doctor who was prepared to deny that all this tampering with the natural functions of women was a cause of that increased mortality. Nature was proving once again that one could not come up against her without penalty.

Birth Control a Health Measure

After Dr. E. R. T. CLARKSON had made a plea for the unprejudiced mind in giving to this vital subject the study it deserved, Sir WALTER LANGDON-BROWN answered some of the Bishop's questions. The world, he said, was overshadowed by war, the aggressor being a country which was trying to find room for its teeming population, and yet in the criminal code of that same country birth control was ranked side by side with banditry. In Queen Victoria's reign exactly similar arguments were used by certain clerics against anaesthetics as were now being used against birth control appliances. The Bishop had asked to what end was birth control directed. The answer was that it was directed to life and health, so that a woman should be able to space her family out at the proper intervals and give each member of it a chance of being properly brought up. The Bishop had said—a thing with which everyone would agree—that slums should be abolished and decent housing provided, and that many of the poor in this country had to live in conditions in which a farmer would not house his stock. But the Bishop was on dangerous ground in referring to stockbreeding, for a pretty severe birth control was exercised there. Sir Walter went on to read from a social study some sample cases of families in great poverty, the parents physically handicapped or mentally defective, and the children likewise, and asked whether those were the sort of people whom it would be possible to instruct in the practice of abstinence. The Bishop had inquired why, if these things were good and necessary, any restriction of their sale was proposed. The answer was that morphine was also good and necessary, but no one would suggest that it should be procurable from a slot machine. It made a good debating point to say that maternal mortality was due to contraceptives, but that had to be proved, and personally he did not believe it. On the general question he believed that celibacy was possible to many, also that marriage was the crown of human happiness, but married celibacy was the worst thing possible. His own belief in birth control measures dated from the time when he was an extern in midwifery at a large hospital. "That steady stream of unwanted babies has haunted me ever since. There were times when I had to get away and walk on the banks of the

Thames in order to feel that there was some beauty in life and some reason in existence." He preferred birth control as an alternative to those things which in the old days were regarded as of divine ordinance—war, pestilence, and famine.

General Discussion

The remainder of the discussion was thrown open to the general meeting, and the opposing points of view were eagerly expressed. A priest restated the Roman Catholic position, and a medical man declared contraception to be a "snake in the grass." On the other hand, one young doctor from the back of the hall urged that if they did not believe in birth control, logically they ought not as doctors to try to prevent or postpone death, for this was also an interference with nature.

The BISHOP OF ST. ALBANS said that Sir Walter Langdon-Brown had twitted him about pedigree stock. "Well, frankly, I do not want to be made a member of the farmyard." He added: "You are throwing dust in the eyes of people when you say that contraceptives are going to be a remedy for social conditions."

CONFERENCE OF HOSPITAL OFFICERS

A conference of the Incorporated Association of Hospital Officers was held at St. Bartholomew's Hospital on November 15th and 16th. It was opened by PRINCE ARTHUR OF CONNAUGHT, who said that the secure place of the voluntary hospitals in the affection of the people of this country was due in no small part to the skill and sympathy which the administrators brought to bear upon their task.

Pay-bed Blocks: Medical Staff Arrangements

The first discussion, on pay-bed blocks, was opened by Mr. G. G. PANTER, secretary of the Royal Northern Hospital, who claimed for his own institution that it was the first in Great Britain to have provided—forty-one years ago—private wards for paying patients. He said that the governing principle was the payment by the patient of a maintenance contribution at least equal to the cost and medical fees in addition, and, this being the case, the patient must have the right to choose his physician or surgeon. Thus the facilities of the hospital must be open to medical men not on the staff. Safeguards were necessary, a useful one being a regulation that all patients must be admitted under a consultant who was on the staff of a recognized voluntary hospital, and that the patient's family doctor might, when desired, and at the patient's expense, assist in treatment in association with the consultant. It was not a very workable arrangement to have a resident medical officer for the pay-bed block alone, because it often happened that there were several consultants in the block at one time, and the resident would be unable to attend each of them. A better arrangement was that the house-physician or surgeon attached to a particular team in the hospital should be similarly attached in the private block, and that the senior resident medical officer should act as house-officer to outside consultants if desired and be responsible in emergency for helping with their cases. The control of fees charged by consultants was a point which bristled with difficulties, but if it was made known that the beds were intended for people unable to afford full medical and nursing home fees, and that the fees should in consequence be on a reduced scale, very few consultants would knowingly abuse their position.

Miss M. HUNT, sister-superintendent of the Woolavington Wing for private patients, Middlesex Hospital, said that the patients' own doctors were invited to collaborate with the hospital consultants and to visit their patients in the private block if they wished to do so; otherwise the house-physician or house-surgeon attached to the consultant concerned visited the patients as required. Mr. G. HURFORD, house-governor of Queen's Hospital, Birmingham, thought that sooner or later recognized conditions would have to be adopted, under which not only any consultant but any general practitioner could be associated with, or even be responsible for, the treatment of a paying patient in hospital, whether in a separate block or in the hospital proper, if the patient so desired. To what extent this might affect the prestige of the hospital in the long run was an important consideration, but he felt that the general practitioner especially would not be content indefinitely to stand aside and see his paying patients pass over to a selected group of consultants. Mr. C. T. WHITELEY (King's College Hospital) thought it necessary to face the fact that pay-beds were not popular with the general practitioner, and that difficulty had to be met. One difficulty was that, although the general practitioner might be allowed to visit his patients in the pay-bed block, the patient did not want to pay the general practitioner in addition to the consultant and the resident staff. Again, in the case of a teaching hospital, if the general practitioner were allowed there would be three people attending the one patient—the consultant, the resident, and the outside practitioner. Mr. PANTER, in reply, said that there were certainly some local medical men with whom no pay-bed would be popular, but the patient, after all, was the person who was paying, and it was for him to decide. At his own hospital, where the patients were encouraged to have their family doctors (though they need not do so), there was a definite rule that the patients in the private block should not pay any of the resident staff.

Out-patient Departments

Mr. R. H. P. ORDE, honorary secretary of the British Hospitals Association, read a paper on some lessons to be learnt from recent committees on voluntary hospitals. Dealing with the Committee on Out-patient Departments, he said that it had done excellent work in drawing attention to the importance of arrangement and planning in the reduction of waiting. But it was clear that unless the doctors were as numerous as the patients, or unless patients came by appointment, waiting was inevitable. Doctors could not be multiplied indefinitely, so that if waiting was to be reduced patients must be restricted in numbers and brought in by appointment, which would mean the closing of the "ever-open door." But this matter was apt to be judged, as usual, by a certain number of spectacular cases; the vast majority of patients were treated and advised with extraordinary expedition.

Mr. C. M. POWER, secretary of Westminster Hospital, said that if there was any department of a voluntary hospital which could with some foundation be criticized adversely it was the out-patient department. At Westminster Hospital a system was being considered which, though not entirely revolutionary, had not been adopted so completely in any other hospital so far as he knew. Here it was suggested that there should be exactly the same service of medical and nursing personnel available for out-patients as existed at the present time for in-patients. Each general surgical unit, each general medical unit, and each special surgical or medical unit would have its wards and its out-patient clinics side by side. There would be available for out-patient service in each surgical unit the senior surgeon, the assistant surgeon, the registrar, the house-surgeon, and so on, and a similar service for the medical and special units. In this way a much wider professional service would be available, and it should be possible to arrange to a greater extent appointment bookings for out-patients. One almoner would deal with both in-patients and out-patients within the unit. Under such a scheme the out-patient department as at present known would disappear, its place being taken by a small casualty clearing station, where a full-time paid staff would be employed to give first treatment where necessary, pending an appointment for examination by the consultant in the appropriate unit.

Sir CHARLES GRANT ROBERTSON said that a great deal of hard thinking had yet to be done on the out-patient department, which was becoming a subject of increasing importance. During the next two or three years some

new light might break, and the new hospital centre in Birmingham was deferring for as long as possible the planning of its out-patient department.

The special problems of provincial hospitals also came in for discussion. Mr. JOHN WILLIAMS, assistant secretary of the Norfolk and Norwich Hospital, referred to the strong local tradition surrounding provincial hospitals, an excellent factor in maintaining subscriptions but liable to narrow the outlook of boards of management and to be reflected in the unwillingness of patients to be transferred to council hospitals when accommodation in the voluntary hospital was not available. He considered that London hospitals were not subject to the same difficulty. Another disadvantage attaching to many provincial hospitals was the lack of efficient pathological laboratories. Some system of central laboratories in specially defined areas for the use of the smaller provincial hospitals was badly needed. Finally he referred to the difficulty experienced by many provincial hospitals in obtaining residents, particularly in summer, when posts as locumtenent were more available and were likely to be much more attractive to the newly qualified. He thought also that provided the appointed person was satisfactory the smooth running of hospitals would be facilitated if senior appointments were held for longer terms than six or twelve months, as was the case at present.

QUETTA EARTHQUAKE: HONOURS LIST

The names of the following medical practitioners are included in the list of honours conferred for services rendered in connexion with the recent earthquake in Baluchistan:

C.I.E.

Lieut.-Colonel Samuel George Steele Haughton, O.B.E., I.M.S., Officiating Assistant Director of Medical Services, Zhob (Independent) Brigade Area, Western Command.

O.B.E. (Military Division)

Lieut.-Colonel Jacob William Vanreenen, F.R.C.S.Ed., I.M.S., Officer Commanding No. 4 Company, Indian Hospital Corps, Quetta.

O.B.E. (Civil Division)

Lieut.-Colonel Vaman Raghunath Mirajkar, F.R.C.S., I.M.S., Professor of Operative Surgery, King Edward Medical College, Lahore, Punjab.

KAISAR-I-HIND MEDAL

Gold Medal

Mrs. Constance Ellice May Berridge, M.B., Lady Divisional Superintendent, Moghalpura Nursing Division, North-Western Railway Corps.

Major James Ernest Gray, I.M.S., Civil Surgeon, Karachi, Bombay.

Silver Medal

Miss Ruth Hooton, M.B., Church of England Zenana Mission Society, Quetta, Baluchistan.

Miss Nora Proctor Sims, M.R.C.S., Women's Medical Service, India.

Henry Bowlby Tristram Holland, M.B., Medical Service, Church Mission Society, Quetta, Baluchistan.

Arthur Durnford Iliff, M.R.C.S., Church Mission Society, Quetta, Baluchistan.

Captain Bertrand Temple-Raston, I.M.S., Civil Surgeon, Dera Ghazi Khan, Punjab.

Bronze Medal

Captain Atta Muhammad Shaikh, medical practitioner, Shikarpur, Sind, Bombay.

Jemadar Karam Singh, sub-assistant surgeon, Civil Hospital, Quetta, Baluchistan.

Jamadar Muhammed Hassan, sub-assistant surgeon, Civil Hospital, Quetta, Baluchistan.

Muhammad Sharif, L.S.M.F.Punjab, sub-assistant surgeon, demonstrator in materia medica, Medical School, Amritsar, Punjab.

Muhammad Zaka Ullah, L.S.M.F.Punjab, sub-assistant surgeon, Civil Hospital, Amritsar, Punjab.

Rao Sahib Subadar Ramisetty Subbaya, sub-assistant surgeon, Civil Hospital, Quetta, Baluchistan.

Seva Ram Madan, private practitioner, Quetta.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

ANNUAL DINNER IN LONDON

The fifth dinner of the British College of Obstetricians and Gynaecologists was held in London at Claridge's on November 15th, with the president, Dr. JOHN S. FAIRBAIRN, in the chair.

After the loyal toasts had been honoured, Lord DAWSON, in proposing the health of the College, said that it now had a fellowship and membership of which it could be proud, and which was extended to the Dominions, making obstetricians and gynaecologists the world over good colleagues and friends. There could be no doubt that the College had gained a growing favour in public opinion. There was a feeling on the part of the public that the question of maternity was a public matter, and an insistence on quality now that the "turnover of babies" was less than formerly. The College had no small task in keeping the public reasonably sane on the problem of maternal mortality. In providing a maternity service for the country the College, Lord Dawson said, should keep the lead in its own hands. It must not surrender its leadership or freedom. It was an open secret, he continued, that the College had conducted a valuable research on the means of relieving the pains of childbirth, and they were looking forward to the publication of practical proposals on the matter. Coupling the name of Dr. Fairbairn with the toast, Lord Dawson said that in him they had a tried and trusted leader of the profession, who had added to their prestige by his recent visit to Australia with the B.M.A.

In reply, Dr. FAIRBAIRN, on behalf of the College, thanked the President of the Royal College of Physicians for the happy terms in which he had proposed the toast. The fact that his "opposite number," the President of the Royal College of Surgeons, was also present made it a memorable occasion. The College had taken some time to evolve a common opinion about a national maternity service, but gradually there had crystallized out a small number of basic principles on which the College was agreed. He could not say when the report on analgesics would appear. It had proved a more difficult problem than they had anticipated. Dr. Fairbairn said he had just received a telegram of greetings to those present that night from Professor R. M. Allan of Melbourne. The B.M.A. meeting in Australia, he continued, had been a great success. They had admitted in Melbourne seventeen members to the British College of Obstetricians and Gynaecologists, and this ceremony had been incorporated with the ceremony of graduation, so that for once in a while "the poor Cinderella" of obstetrics had been in the limelight. Their Australian colleagues had made a gift to the College, as had their colleagues in New Zealand. In all the Dominions and Colonies they visited the British College was asked to take an interest in young graduates sent over to this country. As to the work of the College in the past year, there had been a steady increase in candidates for the diploma, and the number applying for the membership showed no signs of falling off. This was the last time, Dr. Fairbairn concluded, that he would appear before them as president, into which office he would soon have the pleasure of inducting Sir Ewen Maclean.

Sir EWEN MACLEAN, proposing the health of the guests in a very graceful speech, said that he would particularly like to welcome the ladies; and there was one lady to whom they were all deeply indebted, Mrs. Fairbairn, who had contributed so much to the welfare of the College. Among others he would like to mention Lady Simson, who had helped to raise a sum of money for the formation of a nucleus of the library of the College, Mrs. Bethel Solomons, and Mrs. Eardley Holland. They were glad to have with them the chief medical officer of the Ministry of Health, Dr. Arthur MacNalty, Lord Dawson, Dr. Robert Hutchison, Sir William Willcox, Mr. Norbury, and Lord Horder, whose sympathy and help had been much valued by the College. He welcomed, too, Dr. Arnold Chaplin,

who had helped them with the library, Dr. Z. Mennell, who had given valuable service on the analgesics committee, and Mr. Rew, secretary of the Conjoint Board, representative of the most perfect examination machine in the world. Finally, he welcomed the presence among them of Sir Cuthbert Wallace, P.R.C.S., with whose name he would couple the toast. Sir CUTHBERT WALLACE, in a brief and gracious speech, said that he owed a great part of his education to J. C. Cullingworth, the man who had taken the gynaecologist's knife out of the hand of the surgeon. On behalf of the guests he thanked the College for giving them such an enjoyable evening and such a good dinner.

RESEARCH ON ASTHMA

The Asthma Research Council has issued its annual "Report of Progress" for the twelve months ended October 31st, 1935,[1] including a statement of income and expenditure for 1934. In a foreword the president, the Duke of Sutherland, refers to the admirable survey of the work of the Council from 1927 to 1934 by Sir Humphry Rolleston (which is obtainable gratis from the secretary), to the leaflet giving general advice to asthma sufferers, and to an illustrated booklet containing particulars of respiratory exercises recommended by the Council, which is published at 2s. post free. The greater part of the report is made up of statements of the investigations in progress at various hospital clinics.

Reports from Centres

At Guy's there were 448 new cases and 5,819 attendances. In *Guy's Hospital Reports* for April, 1935, there appeared an account of the results achieved by treatment with saline solution, and attention was drawn to the considerable improvement which might be expected in asthmatics as the result of general care and advice without any specific treatment. It was remarked that the frequency of spontaneous recovery provided by these figures afforded a criterion in assessing the results of specific treatment. Work is continuing on the desensitization of asthmatics with injections of inhalant proteins and on the treatment of rhinorrhoea and hay fever. The value of various vaccine preparations is also being tried. It has been shown that statements by patients as to their sensitiveness to various proteins cannot always be trusted, but that physical methods of precipitating attacks may be of real aetiological significance. The exercises recommended by the Asthma Research Council have played an increasing part in the treatment at the Guy's Clinic, which now starts with a probationary period of two months, during which they are associated with general advice and medication, specific therapy being sometimes thus rendered unnecessary. A closer relation has been instituted with the psychiatric department, and it has been found that the parents of patients often need psychological advice even more than their asthmatic offspring. A study of the psychological factors in a group of cases of asthma and asthma-prurigo was conducted from April, 1934, to May, 1935, by the Child Guidance Unit in the department of psychological medicine under the general supervision of Dr. R. D. Gillespie, and a report will soon appear. Faulty environment at home has been shown to play an important part, and in a very high proportion of cases there has been parental over-protection of a kind likely to give rise to nervousness and disorders of behaviour. The results of treatment were satisfactory, and it is concluded that in these cases psychotherapy has much to offer, perhaps as much as any other available method of treatment for this type of asthma patient. An attempt is also being made to determine whether London patients have such a susceptibility to monilia infection as has been reported in cases in the Channel Islands. In suitable cases showing monilia infection the treatment advocated in the Channel Islands is being given, and a report is to be published in due course.

[1] Copies obtainable gratis from the secretary, Asthma Research Council, c/o King's College, Strand, W.C.2.

Research at St. Mary's Hospital has been continued principally on the immunology of hay fever, and excellent results have attended the treatment of patients along bacteriological lines. It has been found that there are two types of allergy to pneumococci and their products in animals, one type being closely related to anti-bacterial immunity, while the other is quite independent of it. The treatment clinic for asthma has recorded over 11,000 attendances, the conditions dealt with including ordinary asthma, urticaria, eczema, angioneurotic oedema, allergic migraine, ichthyosis, and functional albuminuria. There have been some interesting cases of occupational dermatitis, such as "lily-rash" in the spring and chrysanthemum eczema in the autumn. A special laboratory has been opened for the preparation of test substances (pathophanes) used in diagnosing sensitizations, and of protein vaccines to combat them. A new pollenarium has also been established at Pyrford. It is remarked that few of those who suffer from heather fever when deer-stalking in the Highlands or picnicking in Surrey know that they can now be treated successfully for it.

At King's College Hospital the value of breathing exercises has continued to receive attention, with special reference to the acquisition of automatic abdominal breathing, which often aborts an attack of asthma. Other requirements are the complete emptying of the chest during expiration, increase of the flexibility of the chest wall, and relaxation of the contracted muscles of the neck and upper chest. At King's College work is being carried on to determine the importance of the potassium concentration in the blood in relation to the depression of the sympathetic system which occurs in bronchial asthma. At the Leeds General Infirmary a radiological study of asthma cases has established the existence of thoracic deformities due to over-inflation of the chest, and has confirmed the value of breathing exercises designed to correct this. At the Charterhouse Clinic investigations are in progress into the constitutional effects of *x* rays when applied in moderate doses to a large body area in asthmatics. The introduction of the differential sedimentation test has made accurate dosage possible.

Scotland

Radiology in Medicine

In an address on "Radiology in Medicine" to the Scottish Radiographic Society at Edinburgh Royal Infirmary on November 12th Dr. Chalmers Watson said that radiology had now become a distinct division of medical science, and in this advance since Roentgen had made his discovery in 1895 a long list of martyrs to medical science had been claimed. The bony system and the teeth had first been explored, and many things hitherto secret regarding fractures, dislocations, diseases of the teeth, and various stones had been discovered. Later, more accurate knowledge of the solid organs, notably the heart, had been obtained. The next development had occurred by way of the administration of opaque and innocuous preparations of bismuth and barium through the stomach and other passages; still more recently the condition of such organs as the kidneys, gall-bladder, and lungs had proved amenable to similar methods of investigation. The most recent application of radiographic methods of diagnosis had been to the nervous system, so that now gross abnormalities in the brain and cord could be determined with a degree of precision undreamed of a few years ago. Important additions had also been made to the exact knowledge of physiological processes—for example, when he (Dr. Chalmers Watson) was a student medical science had taught that food remained in the stomach after ingestion for six hours and that the stomach was the main seat of digestion, but radiography had shown that food began to leave the stomach immediately, and that the main seat of digestion was much lower down. During the same forty-year period much knowledge had been obtained concerning the value of light treatment. For example, the Finsen light treatment had opened a new chapter

in the history of skin disorders, and the truth of an old discovery had been recognized that rickets was a disease arising from lack of sunlight and that light had a general tonic value. More important still was the discovery that certain articles of diet—for example, milk—could have their vitamin content materially increased by suitable irradiation.

Scottish Universities

At a meeting of the Court of Aberdeen University on November 12th intimation was made that the chair of physiology at Aberdeen University had been filled by the appointment of Professor Ernest Cruickshank as from January 1st, 1936. Professor Cruickshank graduated M.B., Ch.B. at Aberdeen in 1910, and spent some time as a Carnegie Research Fellow from 1914, becoming a Research Fellow of the Rockefeller Foundation in 1924. He graduated D.Sc. at London University in 1919 and Ph.D. at Cambridge in 1926, having taken the M.D. degree of Aberdeen with honours in 1920. In 1926 he became a Member of the Royal College of Physicians of London, and in 1929 a Fellow of the Royal Society of Edinburgh. For a time he acted as professor of physiology and biochemistry in the Prince of Wales Medical College at Patna, India, subsequently proceeding to the chair of physiology in Dalhousie University, Halifax, Nova Scotia, a post which he held up to the time of being appointed to Aberdeen. At the same meeting it was announced that Mrs. Macleod, widow of the late Professor J. J. R. Macleod, had handed over to the university her husband's collection of scientific instruments, to be placed in the library at Marischal College.

At a meeting of the Court of Edinburgh University on October 28th it was intimated that a grant of £1,500 had been made by the Rockefeller Foundation to the Department of Medical Chemistry for a period of three years from October, 1935, to assist research work by Professor Barger in regard to vitamin B_1. It was also intimated that Lady Mackenzie had presented a collection of books belonging to her husband, the late Sir Leslie Mackenzie, to the Department of Social Study, and that a cabinet containing card biographies of medical graduates at Edinburgh University from 1705 to 1866 had been presented to the university by Dr. John D. Comrie.

India

Treatment of Malaria

Malaria is such a widespread scourge in India that most of the health reports received from that country have some reference to its treatment. The annual report for 1934 of the executive health officer of Bombay records that, in addition to quinine sulphate and cinchona febrifuge, the use of quino-plasmoquine was introduced into the municipal dispensaries. In all, 105 patients were treated, of whom only thirty-one continued through a course of treatment for one week ; in twenty-nine of the latter the blood was found to be negative for parasites at the end of the week. There are, however, considerable difficulties in administering this drug to out-patients. It is often difficult to trace all the patients whose blood is positive, and it is not easy to persuade those who are traced to continue the treatment, because many are not suffering from fever although they still harbour malaria parasites. Further, most of them fail to attend the dispensaries regularly for a week as they are instructed to do. In spite of these difficulties administration of the drug is being continued in view of the benefit conferred on those who allow themselves to be treated systematically. In Assam the Government approved the sale of quinine-reinforced cinchona febrifuge, containing one part of quinine to three of cinchona. Each treatment consisted of a total of 20 grains of quinine sulphate and 60 of cinchona, made up in twenty tablets of the mixture. It was found that this cheaper remedy was equally efficacious in preventing and curing malarial attacks. It is sold by post offices and other agencies, a certain amount being distributed free to indigent patients in the badly infected areas of the plains districts. In the Bengal public health report for 1933 an account is given of an anti-malarial experiment with quinine and plasmoquine in the Burdwan district, where the spleen index ranged from 60 to 80 per cent. A course of quinine treatment was given to the whole of the population during the months of April, May, and June, when infected mosquitos are not on the wing and the number of mosquitos generally is small. Plasmoquine was also administered in daily doses of 0.02 gram in the case of adults, and proportionately less for children, for three consecutive days in order to kill the gametocytes in the system. From July onwards thirty malaria treatment centres were operating, treating patients with quinine and plasmoquine. The argument for this scheme is that malaria increases in geometrical progression from July to October, slowing down subsequently, and the virulence of the epidemic should therefore be reduced by adequate preliminary treatment in June and before. This was borne out by the experiment, the incidence being reduced as compared with previous years and the intensity of the epidemic being far less than in the surrounding areas. The success of the scheme depends upon the willingness of the population to co-operate, and upon the efficacy of quinine in the cure of malaria. Unfortunately a good deal of opposition was encountered from local quack practitioners whose livelihood was threatened, and from certain sects of the inhabitants.

Plague in Bombay

Plague raged rather severely in Bombay during 1933, and the annual report of the Director of Public Health shows that there were 24,560 deaths, whereas in the previous year there were 14,446. The year under review came fourth as regards severity since 1917, when 162,874 deaths were recorded. The districts most severely affected were Bijapur and Belgaum, and the heaviest mortality occurred in the Southern Registration District, where there were 21,871 deaths. The epidemic curve of 1932 reached its peak in December of that year ; it declined steadily during the first five months of 1933, and then took an upward trend, reaching its maximum (3,334) in October. Ratting operations were carried on vigorously. In Belgaum efforts were chiefly concentrated on the disinfection of infected and infested houses, and the destruction of rats by trapping and poisoning. Poonah City recorded 1,069 deaths, equal to a death rate of 6.2. In August special measures were set in operation, and inoculation was intensified. During 1933 plague inoculation duty was assigned to nineteen medical officers in the Presidency, and the total number of persons inoculated reached the figure of 726,561, as compared with 417,657 in 1932. A somewhat severe epidemic of cholera also prevailed in the Presidency, and there was a heavy incidence of small-pox, more particularly in Sind, but otherwise the general health was better than the mean of the previous five years.

Ireland

The Sweepstakes Money

The first report of the Hospitals Commission is a voluminous document, and will be printed in two parts: (1) the text and recommendations, and (2) appendix and statistical matter. Part I will, it is expected, be available at an early date. In a recent letter to the Associated Hospitals Sweepstake Committee the Minister for Local Government and Public Health stated that since the passing of the Public Hospitals Act, 1933, there had been paid to the Hospitals Trust Fund sums amounting to £4,626,042. The payments out of the fund had been £277,822 2s. 2d., leaving a balance of £4,348,220. The Hospitals Commission had pointed out that, on the basis of gross deficits for 1933 of the voluntary hospitals —that is, the deficits on maintenance incurred by hospitals, excluding receipts by way of dividends and interest on money derived from sweepstakes—the capital sum required by way of endowment would be £3,200,000.

On the basis of the gross deficits for 1934, the sum required for endowment would be £3,300,000. Even if it was assumed that the sweepstakes money already in the hands of the hospitals was earmarked to be invested to meet future maintenance costs, the sum required for endowment would, it was estimated, be approximately two million pounds. It was essential, the Minister continued, to ensure that sufficient funds were held in reserve to meet maintenance expenses and to provide for the adequate endowment of such beds as might be added to the present accommodation. While he was releasing funds as rapidly as prudence allowed, he had to protect hospital authorities and the public from the grave embarrassments which would arise later if, through lack of foresight, moneys were not forthcoming from any source for the continuation not only of existing services, but of new services for which new buildings or extensions would have actually been erected.

Surgical Treatment of Tuberculosis

Mr. M. P. Burke, F.R.C.S.I., president-elect of the Biological Society of the Royal Colleges of Physicians and Surgeons in Ireland, in the course of an address, said it was only in recent years that much had been heard of surgery in the treatment of pulmonary tuberculosis. Praiseworthy efforts had been made to reduce the incidence of pulmonary tuberculosis since the establishment of the Irish Free State. Tuberculosis officers had been appointed in every county, and efforts were made in a preventive way. Surgery had gathered speed in recent years, but was still tempered with great caution. It would not run medicine down ; rather would it give it a gentle push forward. Surgery must not be regarded as a rival to medicine, but rather as a helper, an adjunct, in the treatment of pulmonary tuberculosis. Although fulfilling its part in the treatment of pulmonary tuberculosis, it did not end the term of the patient in the sanatorium. It accomplished much for the patient, who, so to speak, had not been able to help himself. Mr. Burke thought it must be admitted that the numbers of human beings who succumbed to pulmonary tuberculosis were becoming fewer. For this due credit had to be given to the advent of adequate surgical methods in the treatment of this disease. In Ireland the facilities for the surgical treatment of pulmonary tuberculosis were *nil*, and at the present time cases which needed such treatment had to be transported a very considerable distance and to a general hospital. This condition of affairs should be altered, and altered soon, if any progress in treatment and in reducing the total number of cases was to be accomplished. What was needed was a separate building adjoining existing sanatoria with modern *x*-ray apparatus and an up-to-date operating theatre, with small wards for convalescence.

Child Welfare and Useful Legislation

At the annual meeting of the Dublin branch of the National Society for the Prevention of Cruelty to Children, the chairman, Sir Neville Wilkinson, said he wished to tender the thanks of the Society in Ireland for the response made by the Dail to suggestions for the promotion of child welfare in the country. The provisions of the Children's Act of 1934 had been strengthened, the registration of maternity homes was now law, and further protection had been given to young girls by raising the age from 13 to 15, and in some cases from 15 to 17, in the Criminal Law Amendment Act of 1935. Some of the improvements advocated, however, had not so far been dealt with. The law relating to the removal of children known to be in immoral surroundings required strengthening. Then there was the law relating to affiliation orders ; it was almost inoperative in its present form, for there was no penalty of imprisonment for failure to pay an order of a lower court. The unmarried mother had no redress unless she had enough money to pursue the case in the High Courts. No institution existed at present for children suffering from epilepsy. Lastly, there were no schools for the training of children mentally subnormal although not classified as mentally deficient.

England and Wales

Voluntary Blood Donors' Association

The third annual dinner of the Voluntary Blood Donors' Association, held on November 14th under the chairmanship of Sir James Walton, F.R.C.S., was attended by nearly 240 blood donors and many distinguished medical and lay guests. Lieut.-General Sir Harold Fawcus, secretary-general to the British Red Cross Society, read letters from the Duke of York, the patron, congratulating members on the useful services they were rendering, and from Sir Arthur Stanley, the president, regretting his inability to be present. Professor J. W. H. Eyre, in proposing the toast of "The Service," said that in 1921, when the association was formed, only one voluntary transfusion was given, the service depending upon professional blood donors ; during 1935 to date over 4,000 voluntary transfusions had been given from individuals in all walks of life. Mr. P. L. Oliver, who responded, said that the number of calls on the service during 1935 was already 200 ahead of the total for 1934, and there were six more weeks to go. So far the association had never failed to provide a donor. Some difficulty was experienced over telephonic communication, for of the 2,050 members of the association scarcely 400 were on the telephone at home, but other members of the public had generously come forward and volunteered to accept messages for donors in their immediate vicinity. Mr. Oliver expressed hope for the formation of a national blood transfusion service: at present nearly every service not directly affiliated with the association had its own separate rules. This rendered all the more necessary the holding of a general congress of representatives to see whether some co-ordination could not be reached, and it was for the Voluntary Blood Donors' Association, as the pioneer service in this country and the only service of its kind in the world, to lead the way. The speaker coined a happy phrase when he said that the next generation might consider that the London Blood Transfusion Service had added "a footnote to the history of medicine." Sir James Walton, in responding to the toast of his health, proposed by Mr. A. M. A. Moore, said that one great value of the service was its anonymity. If the donors were known to their recipients they would be overwhelmed with expressions of gratitude. On the other hand, he felt that every donor might be told the result of his effort, without being told the name of the patient. In the present gathering there was a lady who had given her blood for one of his patients, and he hoped it would please her to know that that patient, who without her help must surely have died, went through his operation with ease and comfort. Mr. D. P. Kennedy, deputy chairman of the association, spoke of the need for the closest co-operation between the hospitals and the association. Other speakers were Dame Louise McIlroy, Major Raphael Jackson, Dr. H. L. Marriott, Mr. F. W. Mills, and Dr. H. F. Brewer. Dr. Brewer remarked that he had seen many very happy results from blood transfusion, but he was a little perturbed on one occasion to see an elderly gentleman, who had been transfused from a lady donor, sitting up next day quietly knitting!

Annual Congress of Radiology

The ninth annual congress arranged by the British Institute of Radiology is to be held at the Central Hall, Westminster, from December 4th to 6th, and at the same time and place the British *x*-ray industry is organizing an exhibition of apparatus, to be opened by Lord Nuffield, to which some twenty firms are contributing. In association with the congress, which will meet under the presidency of Dr. L. A. Rowden of Leeds, two memorial lectures are to be delivered: the Silvanus Thompson Lecture, by Dr. G. W. C. Kaye, in the form of a review of forty years of radiology ; and the Mackenzie Davidson Lecture, by Dr. G. Harrison Orton, on calcium changes and their importance in diagnostic radiology. Of the three other sessions of the congress two are devoted

to medical papers and the third to physical and technical papers. The subjects of the medical papers include: the radiation treatment of carcinoma of the breast; radiosensitivity in relation to the time-intensity factor; skin tolerance in relation to radiation intensity; ventriculography; gastro-intestinal neoplasms; and fungoid infections of the lungs—all contributed by well-known radiologists. It is noteworthy from the titles of the papers how large a part scientific methods of measurements now play in radiological practice. The congress closes with a dinner at Claridge's Hotel.

Co-operation between Public Health Authorities and Voluntary Hospitals

Sir Kingsley Wood, the Minister of Health, speaking at the annual meeting of the Hospital Saving Association, said that in many respects we were living in a new era so far as public health services were concerned. Up to five years ago there was no general treatment of the sick by the public health authorities, personal medical services of a public character being previously only available to those coming under the Poor Law. Another step forward had been the transfer of large numbers of infirmaries and other institutions to the county councils and county borough councils. This had meant the adaptation of many of them so that complete treatment could be provided on modern lines. The relation between the public health authorities and the voluntary hospitals was to-day closer and better. It was more and more appreciated that the authorities and the voluntary hospitals should pool and develop their resources in the way best calculated to serve the needs of the men and women living in their particular areas. Local authorities in developing their hospitals would no doubt act in consultation and not in competition with voluntary hospitals, and where voluntary hospitals themselves intended to expand, such expansion could often be fostered by the receipt of patients on behalf of, and at the expense of, the local authorities. Where the needs of a district required entirely new hospital accommodation it should be provided in accordance with a well-considered plan for the future, which should be worked out by the local authorities and the voluntary hospitals in close and cordial co-operation. All hospitals had to-day one common and identical purpose—the relief of suffering, the conquest of disease, and the saving of life. A practical and unified system of co-operation between them was the sensible and practical course; they must be marshalled together in a joint war against disease and death.

The Teaching of Anatomy at St. Thomas's

A number of visitors from London hospitals and medical schools had the opportunity on November 14th of inspecting the alterations and additions to the buildings and equipment of the anatomy department of the St. Thomas's Hospital Medical School. The new buildings include a fine radiological laboratory with adjacent dark room, three research laboratories, an office, and the director's room. The dissecting room has been completely renovated, with a new terrazzo floor, and a new specimen room for the accommodation of demonstration specimens opens directly from it. New equipment has been provided in the museum and neurology room. A completely new *x*-ray apparatus of the most modern type has been installed. The radiological laboratory also provides space for lectures to small groups of students and for a photographic bench. The latter accommodates a camera which serves both for the reduction of *x*-ray negatives to lantern-slide size and for photomicrography. Besides the large lecture thearte, which was rebuilt in 1933, there is a small theatre employed for the demonstration of clinical cases, and for the study of surface anatomy and of the action of muscles in the living subject by means of the Bristowe coil. The anatomy department of St. Thomas's is thus admirably equipped for the teaching of living anatomy simultaneously with that of the cadaver, while the student also acquires a knowledge of normal *x*-ray appearances in preparation for his clinical work.

Reports of Societies

THE MALARIA EPIDEMIC IN CEYLON

The Sections of Epidemiology and Tropical Diseases of the Royal Society of Medicine held a combined meeting on November 15th to discuss the recent malaria epidemic in Ceylon. Surgeon Captain S. F. DUDLEY, president of the Section of Epidemiology, presided.

History of the Epidemic

Sir WELDON DALRYMPLE-CHAMPNEYS read a paper of which he and Dr. Rupert Briercliffe, director of medical and sanitary services, Ceylon, were the joint authors, and preceded it by a warm tribute to Dr. Briercliffe, who could not be present, for the way in which he had handled the situation in Ceylon, despite much hostile criticism and misrepresentation. Sir Weldon himself had been out to Ceylon and had seen at close quarters the anti-malarial organization and the arrangements for the treatment of patients.

The epidemic started towards the end of 1934, and was followed by a secondary wave starting in April, 1935. It was the most serious outbreak on record in Ceylon, or perhaps in any country. Attention in the past had been concentrated on endemic rather than epidemic malaria. With the aid of lantern slides, supplemented by a short reel of film, Sir Weldon described the physical and climatic features of the island, the anti-larval measures, and the hospital and dispensary arrangements. From April, 1934, onwards rainfall in Ceylon was generally deficient owing to partial failure of the south-west monsoon, and the effect of the unprecedented drought was to reduce the flow of the rivers. The *Anopheles culicifacies*, the only one of the eighteen known species of anopheles in Ceylon which had been proved to be a carrier of malaria, found ideal breeding places in the pools of still, clear water exposed to sunlight, while shallow wells, water in quarries and brick pits, and in burrow pits by the side of roads and railways, assisted its multiplication. During a large part of the normal wet season the conditions in the south-west quadrant, known as the wet zone, approximated to those in the dry zone—that is, the remaining three-quarters of the island—in which the *A. culicifacies* had its natural home. The area affected by the epidemic, a quarter of the extent of the whole island, was the richest and most populous part of Ceylon, with a population of over three millions, or more than half the total. The abnormalities of the rainfall gave rise to the expectation of an increased malaria prevalence and of localized outbreaks towards the end of the year, and the provincial surgeons had been already warned, but the overwhelming epidemic which broke out with extreme suddenness during the latter half of November and early in December was not expected and was indeed unprecedented. By December the attendances at the Government dispensaries and treatment centres reached over 60,000 in a single day, and by the middle of that month half a million people in the epidemic area had contracted malaria. During the period from October to April the number attacked was one and a half millions, and large numbers of persons suffering from relapses or post-malaria debility and oedema continued to attend the centres. The epidemic began to decline, as reflected in the figures of deaths, in February, and the decline continued in March, but in the second week of April a second wave of epidemic began, again not unexpected. The principal epidemic had differed from other malarial epidemics in having started in October instead of April, but when malaria occurred in the wet season April to July was the usual period. During the second wave many persons who had not previously suffered from malaria were infected, but the most interesting extension of the epidemic was upwards. Until April infections at altitudes above 2,000 feet were very uncommon, but in May and June malaria broke out in villages on the banks of streams 3,500 to 4,000 feet above sea-level; no explanation of this could be given. In the whole epidemic area there had been continued improvement since the second week of

June, and conditions in most parts were approximating to the normal. In September in many districts the death rate was down to the average.

Anti-malarial Measures and Treatment

Anti-larval measures were started in January, 1935, and consisted in the elimination of breeding places by canalization in the beds of the main rivers and the oiling of pools in the neighbourhood of large villages. It was suggested by critics at the time that the epidemic might have been brought to an early conclusion by widespread anti-larval measures of this kind, but the magnitude of such a task would be apparent when it was stated that 7,000 miles of watercourses would have had to be dealt with, and the cost would have been quite out of proportion to the benefit expected, even if the trained personnel had been available, which was not the case. Intense anti-larval measures were taken in and around Colombo, and emergency regulations were issued in February.

Most of the cases were of the simple febrile type and responded readily to treatment. Blackwater fever was reported on only five occasions. Most of the deaths were attributable to dysentery, severe diarrhoea, and pneumonia. Post-malarial oedema was common in the northern part of the epidemic area ; it was regarded as a manifestation of malnutrition, and the feeding of school children was undertaken as a relief measure by the Government. Gangrene of the extremities also occasionally occurred. The standard treatment of an adult patient was 7½ grains of quinine sulphate or bisulphate in solution three times a day. This treatment had the great advantage of being safe in the hands of unqualified persons, and of rapidly reducing fever and relieving symptoms, but, of course, with alleviation of symptoms patients left off treatment, and there was a high relapse rate. Plasmoquine and atebrin were frequently employed for hospital in-patients, but were considered unsuitable for use for out-patients. Treatment centres were planned in every group of badly affected villages, and by the third week of February these numbered 690. No patient had to go more than a mile and a half for treatment, the majority a much less distance. Moreover, 136 estates threw open their dispensaries for the treatment of village patients, and were supplied by the Government with quinine. During the six months 33,000 lb. of quinine were issued, and there was never a shortage. Thirty-eight Government hospitals were established in the epidemic area, with beds for 4,000 patients, and further accommodation for 1,000 was provided, but congestion was very acute until the end of February. Voluntary agencies and private individuals opened forty-three hospitals and convalescent homes, which were visited by the officers of the department and supplied with drugs. By the end of August conditions had so far improved that all except two of the Government temporary hospitals were closed, but in the Kandy district six additional temporary hospitals were opened during the second wave of the epidemic.

The Mosquito Vector

Dr. V. B. WIGGLESWORTH said that in the epidemiology of malaria many factors were at work, including the degree of immunity of the population, their habits and environment, and the species and perhaps the strain of the parasite. The appropriate mosquito in the necessary abundance was a condition of epidemic just as much as of endemic malaria, and therefore, though he did not support an exclusively mosquito theory of the Ceylon epidemic as opposed to a more general theory which took all the other factors into account, he confined his remarks to the mosquito factor. *A. culicifacies*, which was the only proved carrier in Ceylon, occurred throughout India. In the dry season in Assam and in some other regions, when the water was reduced, *A. culicifacies* was present in myriads in clear-water pools, but as these were cold districts it was practically harmless ; in the Punjab conditions were very different. The conditions in many parts of India were very similar to those in the endemic areas of the dry zone of Ceylon, and he described, with the aid of lantern slides, how something had been done by modifying agricultural practice and also by pisciculture to restrain the prolific breeding of the anopheles. How was it to be combated in Ceylon? The large towns, given good organization, ought to be able to protect themselves ; the protection of the innumerable villages throughout the area subject to epidemics was more difficult. The modification of agricultural practice in such a way as to eliminate the dangerous species of mosquito called for an intimate knowledge of the bionomics of the particular insect. But the abundance of *A. culicifacies* in Ceylon and in some parts of South India bore little relation to agriculture. It was bound up with the question of the drying rivers, which were for the most part natural phenomena, not a creation of man. Another point about *A. culicifacies* was that in Ceylon it was noted not only in the residual pools along the margins of the rivers, but in the main body of the stream, so that no matter how the area was controlled larvae must be brought down from above. Dr. Wigglesworth felt, however, that before they became reconciled to defeatism a great deal more could be learned about the *A. culicifacies* and its ways. It would be necessary to define in precise physical terms the criteria by which it selected its breeding places. It was known to be one of the species which fed indifferently on man and animals. To what extent could its choice of host be influenced by the design of houses and the disposition of cattle around them? Was the destruction of female mosquitos in houses likely to be an effective measure? His impression was that this was unlikely, but in view of successes claimed recently in South Africa and in Antigua in the West Indies it might be necessary to modify that opinion. The best answer to the question would be afforded by an intimate study of the bionomics of *A. culicifacies*—a study equal in refinement to that given by taxonomists to the species and races of mosquitos, work which had proved of great value. In this way the weak links might be discovered and the chain of malarial transmission be broken.

Malaria in Ceylon before the Recent Outbreak

Dr. P. H. MANSON-BAHR, after associating himself warmly with the tribute paid to Dr. Briercliffe, who was responsible for the whole of the water supply to the Egyptian Expeditionary Force during the war, said that he himself had studied malaria in Ceylon in 1912-13. It was then the scourge of the low country—the humid, hot agricultural districts of the Western and Southern Provinces, and the hot but dry jungles of the Northern and Eastern. At that time no evidence of primary infections of malaria at an elevation above 2,200 feet was obtainable, though in former times epidemics had been recorded above that elevation in the Kandy district. In the North, Central, and Eastern Provinces malaria was said to have caused enormous ravages in past centuries, leading to depopulation of large areas and eventually to the abandonment and partial destruction of the great cities of Anurhadhapura and Polonurrua, formerly the seats of the Sinhalese kings. On the west coast of Ceylon at the time under review malaria was studied in detail by Colonel (then Major) S. P. James at Talaimannar, the Ceylon terminus of the Indian railway. From a study of a representative series of blood films from all over the island he (Dr. Manson-Bahr) had concluded that at that time, twenty-three years ago, the quartan parasite predominated (63.8 per cent.), the benign tertian coming next (19.2 per cent.), while the subtertian was the most infrequent of all positive infections (17 per cent.). Kurunegala, the centre of the rice-growing district in the North-Western Province, had always had an unenviable reputation for epidemic malaria. In blood films of children in this district, although the quartan parasite again was that most frequently encountered, the subtertian parasite was found only three times amongst 435 children examined. Eleven species of anophelines were recognized as being common in Ceylon, and *A. culicifacies* was regarded at that time as being the most dangerous vector. One species only, *A. gigas* (variant, *refutans*) was found to flourish above 4,000 feet elevation.

The Medical Service in an Epidemic

Colonel C. A. GILL, I.M.S., as one who had studied the recent epidemic in Ceylon for about five months, added his testimony to the extraordinarily efficient manner in which a wholly unprecedented and unexpected emergency was met by Dr. Briercliffe and the Ceylon Medical Department. As soon as the "explosion" occurred Dr. Briercliffe, without hesitation, and with the sanction of the Government, mobilized the whole of the medical forces in Ceylon. Every private practitioner, apothecary, and dispenser, a good many sanitary inspectors and nurses, and even medical students were requisitioned. The whole of the personnel of the public health department and specialists in various other departments were switched over to the medical department. That, to his mind, coming as he did from India, was a remarkable and an excellent thing. In India the public health departments were separate from the medical, and it would have been impossible to do there what was done in Ceylon. It emphasized the desirability of the D.M.S. being the head of both the medical and the public health departments. In India generally it was the public health department which was in charge of the arrangements during epidemics, but the proper thing, surely, was for the medical department to take over the public health department in such circumstances. It was a medical job, not a public health job, and that was the principle which had been acted upon in Ceylon, with quite valuable results. If the head of the medical services was not in control also of the public health department there could be no proper liaison. One feature of the Ceylon scheme was the free kitchens at the dispensaries, a very desirable innovation, because the people were suffering not only from malaria but from famine. Sanitary inspectors from the public health department were utilized very largely as intelligence officers and, incidentally, as distributors of quinine. Another point was the institution of weekly reports, so that the head of the medical service knew exactly was happening, and departmental conferences were held whenever necessary, when the position was reviewed by all the people concerned and future plans were discussed. The medical department was subjected to most undeserved criticism in the Ceylon Press. The epidemic itself attracted more than usual attention, on account not only of its dimensions but of its unusual features. Previous epidemics in India had always been associated with excessive rainfall, whereas this was associated with drought. Previous epidemics had exhibited only one wave of mortality, this had two waves. He thought that what had been accomplished in Ceylon was without precedent in the history of civil medical administration.

Professor W. SCHULEMANN of Düsseldorf said that it was only natural that in such an emergency routine methods of quinine administration should be chiefly employed, and there could be little opportunity of trying new methods in overcrowded hospitals. There could be no criticism on the score that the injection treatment of malaria was not tested out. He also agreed that during an epidemic the use of atebrin must be restricted to those cases which were treated under institutional conditions. Suitable administrations of atebrin had availed to reduce the relapse rate and to prevent sequelae. A treatment combining atebrin and plasmoquine, the drugs being given according to a strict schedule on certain days of the week, was promising, but where there was a floating population it would be advisable to give atebrin only.

The Factor of Immunity

Colonel S. P. JAMES said that in assessing the abnormal factors which were at work in causing the epidemic the results obtained in the laboratory study of induced malaria carried out during the last ten years might be helpful. He limited himself to one point only. It was understood that prior to this epidemic in the wet zone of Ceylon the population at risk was almost entirely without any immunity to malaria. Why was this lack of immunity such an important factor in producing the epidemic? According to the results of laboratory work at Horton the answer was that in non-immune cases the gametocytes appeared in the blood; the less the degree of immunity the greater the number of cases with gametocytes in the blood and the greater number of gametocytes in each case, and therefore the greater the number of cases which were good infectors of the anopheles. Very much depended, obviously, upon the extent to which the mosquito was laden—in other words, whether it carried enough sporozoites to infect a great number of people and to remain infective all its life, or whether it lost all its sporozoites in infecting two or three. The less the immunity the greater the number of cases of malaria that would be produced, and as lack of immunity was the first essential for the production of heavily infected mosquitos it would be seen that this epidemic in Ceylon might well have arisen because the people in that area were non-immune.

THE TEACHING OF CHEMISTRY

The Harrison Memorial Lecture on "The Teaching of Chemistry" was delivered to the Pharmaceutical Society of Great Britain on November 12th by Professor ARTHUR SMITHELLS, D.Sc., F.R.S.

Professor Smithells said that for nearly three years during the war he was in close association with Colonel Harrison. No one, he was sure, had contributed more vital service to our Army. For the true *éloge* of Edward Harrison he pointed gratefully to the memorial lectures delivered by Dr. Francis Carr and by the president (Mr. E. Saville Peck). His early experiences as an examiner to the Pharmaceutical Society left him convinced of the valid claim of pharmacy for university departments of full stature. At the same time he realized the immense difficulties that lay before the society in dealing with its educational problems. He then proceeded to view the teaching of chemistry in the light of his own experience, beginning with the university professor of chemistry and with those students who came to him, eager in the ardour of youth, to embrace the study of chemistry for its own sake. The most baffling difficulty lay in dealing with a subject in which the advance had been of almost unparalleled rapidity and, most recently, in changes on the theoretical side which had not only led to the acquisition of tracts of new knowledge, but had affected science at its very base. The feature that most concerned him was the great burden that university classes now put upon the student, and especially on his memory. Complaints were heard on every side and relief was urgently called for. The reduction and emendation of the curriculum would result in a gain far exceeding in importance any possible loss in its range.

Passing to the teaching of chemistry to those whose dominant interest was its application to some particular calling, Professor Smithells referred to students of medicine as an example. He related how, in his own experience, he had been led to place such students in a course apart, where he had striven, without any intellectual sacrifice, to invest the teaching throughout with facts and illustrations connected with the medical calling. He strongly emphasized the importance of the address with which Sir Frederick Gowland Hopkins had opened the current session of the Pharmaceutical Society's school. Sir Frederick had challenged the still common dictum that science could only be taught properly when it is taught as pure science, without special reference to its applications, expressing himself convinced by experience that whilst the creation of a scientific attitude of mind was the first consideration, wise teachers and examiners would find that this most desirable result could be attained by teaching what was essentially vocational and largely confined to aspects of scientific knowledge which were of permanent and practical value. Discussing the teaching of chemistry in schools, Professor Smithells, after a brief reference to its earliest history, passed to the period when, after rapid growth, it had assumed the form in which it was usually found when he became a university teacher—as a mere small-scale replica in contents and form of the

early chemical course of a university. This teaching had led to the revolt, headed by Professor H. E. Armstrong, who thenceforward to the present day had stood as the great campaigner against all that had seemed false in chemical education, wherever it had appeared, but, above all, in its earlier stages. The lecturer discussed the influence exerted inevitably by the university teacher, and considered that it had been far beyond what was warranted. He deplored the crowded state of the curriculum, for which relief had been sought by relegating to the schools so much higher work in science that there was a real danger existing of just that kind of overbalance of one kind of subject as was the case with classics when science first sought admission to the curriculum.

In conclusion, Professor Smithells alluded to the vast educational structure which had arisen in his lifetime and the existence of what was now habitually referred to, in terms which must strike a note of alarm into the heart of every true teacher, as the "machinery of education." He did not underestimate the splendid efforts that were being made and the enormous difficulties to be overcome. He thought that they had never been so forcibly expressed, nor made so clear, as in the address recently delivered at Norwich by Dr. Pickard-Cambridge, president of the Education Section of the British Association. He knew no educational pronouncement of recent times so weighty and so worthy of attention. The lecturer expressed the hope and belief that what had been said was in consonance with the mind and spirit of Edward Harrison, a man who, in his range of great virtues, was characterized by an honesty of intellect, a hatred of pretence and pedantry, and an eager enthusiasm for the patient and conscientious pursuit of knowledge for every good purpose of mankind.

EPHEDRINE FOR ENURESIS

At a meeting of the Liverpool Medical Institution on October 24th, with the president, Dr. C. O. STALLYBRASS, in the chair, Dr. R. W. BROOKFIELD read a short paper on "Ephedrine in the Treatment of Enuresis."

Although ephredrine was recognized as being of great value in asthma and other allergic states, its usefulness in the treatment of enuresis was not sufficiently realized. The bladder, like other organs, had a dual innervation. Its nerve supply was derived through the sympathetic and sacral autonomic (parasympathetic) systems. Relaxation of the internal sphincter and evacuation were favoured by parasympathetic and inhibited by sympathetic impulses. There was no reason to suppose, therefore, that ephedrine as a sympathetic stimulant would have a favourable effect in enuresis by contracting the internal sphincter and relaxing the bladder wall. This expectation was supported by clinical results. Dr. Brookfield then cited illustrative cases. His custom had been to give an initial dose of half a grain of ephedrine hydrochloride at bedtime. The dose was increased by half a grain every four to seven days, until the enuresis was controlled. Some patients showed a remarkable tolerance to the drug: as much as four grains at a dose had been given without any unpleasant effects. In many children, however, side effects were apt to be troublesome, but could usually be counteracted. Wakefulness and restlessness responded well to a quarter of a grain of phenobarbitone given concurrently. Vomiting, which occurred sometimes, ceased on reducing the dose. The results achieved warranted the view that ephedrine was the most useful drug at present for treating enuresis.

In the discussion Dr. NORMAN B. CAPON reported good results with ephedrine. He considered it a useful adjunct to the more fundamental treatment of this state, in which both physiology and psychology were disordered. Dr. P. F. TINNE remarked that particular attention had been given to the psychology of the condition and the nervous influences governing control. Disciplinary measures had been advocated, but he thought that no child should be subjected to a most unjust form of treatment for a condition over which it had no control. Very often enuresis was entirely due to the irritation of threadworms in the lower bowel, and the appropriate remedies for their removal would completely clear up the condition without resort to drugs. Dr. J. BERKSON said that ephedrine would be very welcome to the general practitioner who had relied on the use of large doses of belladonna, with the risks of overdosage.

Treatment of Bone and Joint Infections

Mr. R. WATSON JONES read a paper on "Modern Methods of Treatment of Bone and Joint Infections," which was illustrated by means of cinematograph films. He said that however efficient the treatment of established infection of these wounds might be, the results could never compare with those secured by avoiding the infection. The first problem, therefore, was the immediate excision of possibly infected wounds, haemostasis, and primary suture with adequate immobilization. When infection was already established drainage of the bone or joint was imperative, but the question of after-treatment still remained. Whatever technique was adopted it must be equally easy to control the infection and to immobilize the limb. The incidences of pathological dislocation, of pathological fracture, and of postural deformity were far too high; these complications meant that surgeons, in their anxiety to control the infection, had neglected to control the position of the limb. The Winnett Orr no-dressings-vaseline-gauze-plaster method overcame these difficulties, and was particularly valuable in the infected compound fracture. Although infection was responsible for delayed union it was rarely responsible for non-union; the frequency of non-union was attributable to the inadequacy of immobilization which had hitherto been permitted. If the fracture was perfectly immobilized throughout the period of infection, and for several months afterwards, bony union was usually secured. The method was of particular value when extensive granulating wounds extended across joints—as in the degloved hand, the degloved foot, after severe burns, or in cases of extensive pressure sores. Skin grafts could be employed beneath the plaster. Deformity was prevented and, because fibrosis of the tissues was minimized, movement of the joints was frequently retained.

In the discussion Dr. D. WAINWRIGHT said that he did not share Mr. Watson Jones's enthusiasm for the use of plaster in the immobilization of acute haematogenous infections of bones and joints. He believed that the tenets and principles of the Winnett Orr treatment of these conditions could be maintained by the use of other methods of immobilization which had distinct advantages. The initial treatment differed in no way from that employed by Mr. Watson Jones, but the method of immobilization by external splinting—for example, the use of a Thomas splint in acute osteomyelitis of the lower end of the femur and upper end of the tibia, and the use of a Jones abduction frame in acute infections around the hip-joint—had the following advantages: (1) the adjacent joint could be inspected without removal of the splint or dressings; (2) the surrounding skin could be examined for local spread of infection and subcutaneous abscesses; and (3) the external dressings containing the offensive dry pus could be removed without disturbing the granulating surface. Great anxiety might often attend these very acute inflammations when the whole limb was completely encased in plaster.

Mr. JOHN T. MORRISON remarked that the demonstration made the primary treatment of wounds appear to the uninitiated altogether too simple. Excision of wounds was a difficult and tedious operation, particularly in cases of bone injury. Such accidents required treatment at least as urgently as abdominal emergencies, and it was strange that the insurance companies had not realized the immense savings they could effect by themselves providing expert hospital service for the early treatment of such cases, as was done in Vienna. During the first six hours operation could be freely undertaken. Thereafter the wound ceased to be merely a contaminated wound and became increasingly an infected wound, with

corresponding risk attached to intervention. With regard to the Winnett Orr treatment, Mr. Morrison could not see the necessity for complete enclosure of the limb in plaster. Could the surgeon not trust himself or his assistants to keep from interfering with the pack in the wound? There ought in every case to be a definite positive indication for changing any dressing. He agreed as to the relative unimportance of antiseptics and the great benefits secured by complete rest to an infected wound. He was impressed with the possibilities revealed in the treatment by plaster of patients with severe bedsores.

Mr. BRYAN MCFARLAND, commenting on the importance of bringing into proper perspective some procedures which might otherwise be taken for granted, said that the best results of compound injuries shown that night had been obtained, not by the treatment of Winnett Orr, who advocated leaving wounds open, but by primary excision and suture. He had practised this before the Winnett Orr method was introduced, and he still believed that it was much superior. In fact, although Winnett Orr had done one good thing in advocating covering up chronic wounds, whether from bone or more superficial injury, and so had brought people to realize that it was not necessary to keep wiping and dabbing, he thought that Winnett Orr had done harm in confusing compound fractures, which were potentially sterile, with acute osteomyelitis, which was essentially infected. With regard to the latter, complete covering with plaster with no window was a bad procedure. In compound fractures it was better, as had been shown that evening, to perform primary excision, and to suture and encase in plaster. If the wound became septic it was much less so than if it had been left open, and in about nine cases out of ten primary union without sepsis occurred.

Mr. E. N. WARDLE said that no one could take exception to the contention of Mr. Watson Jones that early operative intervention was the best treatment for wounds of bones and joints. The more one saw of this kind of case the more care one took with the primary excision and suture and the better were the results. With regard to the treatment of established infection, it seemed to him that the Winnett Orr method had relieved patients from a very painful daily dressing. The method was sound, but had its limitations. The wound so treated must be wide and shallow. Two practical points were raised: how to deal with the follicular skin infection occurring under the vaseline gauze; and the best treatment in the occasional case where the granulation tissue became exuberant.

THYROID DISEASES

The Wolverhampton and District Clinical Club held the first meeting of the winter session in the Royal Hospital, with Dr. S. C. DYKE in the chair. The clinical subject for discussion was diseases of the thyroid gland.

Dr. J. H. SHELDON dealt with the medical aspect, and cited cases illustrating the great difficulty which occasionally arose in the diagnosis of atypical myxoedema. He commented on the very high mortality of thyroid abscess; nearly all these patients died from acute hyperthyroidism. Mental shock was the commonest exciting cause of exophthalmic goitre, the next in order being septic foci, such as those in the tonsils. The correct treatment of the disease was at present surgical, but there was some indication that the pituitary gland was aetiologically concerned in exophthalmic goitre, and ultimately the treatment might be medical, involving the administration of an anti-hormone. Ergotamine tartrate was useful in intractable cases.

Mr. MILNES WALKER, reviewing the surgical treatment of exophthalmic goitre, said that before an operation any septic foci should be eradicated, except in very acute cases. The chief indication for early surgical intervention was rapid loss of weight. Pre-operative treatment with iodine was essential, and avertin was of great service in anaesthesia. The mortality of the operation at the Mayo Clinic was only 0.5 per cent., as compared with 3 to 6 per cent. in Great Britain, but he believed that the American type of the disease was not so severe, especially as regards its cardiac effects. Of the post-operative complications acute hyperthyroidism might be avoided by preliminary ligature of the superior thyroid arteries or their piecemeal removal. The recurrent laryngeal nerve was very sensitive to slight trauma. Tetany might supervene.

In the subsequent discussion Dr. RIGBY, dealing with the *x*-ray treatment of Graves's disease, said that the early cases were the most successful; cases of more than six months' duration did not do so well. Preliminary iodine medication, discontinued during surgical treatment, was as essential as before an operation. Dr. SOMERSET mentioned cases of Graves's disease which had improved after tonsillectomy, and a case of mental disorder associated with myxoedema. Mr. CAMPBELL ORR described a case of tumour of the ciliary body which proved to be secondary to a malignant thyroid gland. Only three cases of metastasis from the thyroid had been found in the eye, and no other one involving the ciliary body. Dr. GOGGIN showed two cases of Graves's disease: (1) a girl, aged 9, treated by preliminary ligaturing of the superior thyroid arteries, followed after fourteen days by partial thyroidectomy; and (2) a patient who had post-operative tetany and aphonia after acute tonsillitis. She completely recovered and was at work two and a half years after the operation.

ECZEMA AND PSORIASIS

At a meeting of the Devon and Exeter Medico-Chirurgical Society, with the president, Dr. F. N. SIDEBOTHAM, in the chair, Dr. H. W. BARBER gave an address on eczema and psoriasis.

Dr. Barber defined eczema as an epidermo-dermal reaction to exogenous or endogenous reagents. A serous exudation infiltrated the epidermis and dermis, and the essential change was epidermal oedema (spongiosis), which, if intense enough, produced vesicles visible on the surface—the eczematous vesicles of Willan. Exogenous causes might be mechanical or physical, chemical or parasitic. It was difficult to classify the various forms of eczema of internal origin, but the following groups were suggested: (1) eczema due to known toxic substances, such as iodine, formalin, and quinine; (2) eczema due to idiosyncrasy to food substances—for example, certain cases of infantile eczema caused by hypersensitiveness due to milk and cereals; (3) eczema due to bacterial toxins or to the products of their action on the tissues, and to toxins of the higher fungi; (4) eczema due to autogenous antigens of somewhat hypothetical nature and origin; and (5) eczema of psychogenic origin. Successful treatment depended on the taking into account of the likely predisposing factors as well as the possible immediate causes. External factors should be considered before internal ones. In a general summary of local therapeutic measures in acute eczema, Dr. Barber advocated cooling and decongesting lotions, such as calamine and zinc with a little spirit and lime-water, or lead lotion; inert powders, including talc and zinc oxide, which might be made into a paste with glycerin; olive oil, sweet almond oil, lanolin, and lime-water; or calamine liniment. In subacute and chronic eczema he commended zinc paste, with or without salicylic acid, as the best base; to it might be added ichthyol (1 to 3 per cent.), liquor picis carbonis (30 minims to 2 drachms to the ounce), resorcin (1 to 2 per cent.), oil of cade, or tumenol. In chronic weeping eczema silver nitrate (2 to 10 per cent. in 25 per cent. alcohol painted on daily) was of value. Crude tar was sometimes useful, but must never be used in infected cases. In severe cases of internal causation strict dieting was indicated; calcium salts might be given as diuretics for a time, and in plethoric persons large doses of alkalis with magnesium sulphate, while in debilitated patients the syrup of calcium lactophosphate and vitamin concentrates were useful. Complete physical and physiological examination of the patient was necessary. Outlining methods of desensitization, Dr. Barber said that

the intravenous and oral administration of sodium thiosulphate was of value in acute cases, particularly when metallic intoxication with arsenobenzol, gold, or bismuth was concerned. Autohaemotherapy was undoubtedly beneficial in some instances, as were also intramuscular or intravenous injections of peptone and subcutaneous injections of urinary proteose. In infective eczematoid dermatitis staphylococcal or streptococcal vaccines were advisable.

Psoriasis

Dr. Barber estimated that an inherited and familial tendency was present probably in about 30 per cent. of all cases of psoriasis. This skin disease might be associated with tonsillitis, and it seemed that a streptococcal infection aggravated the eruption; with focal infection of the teeth; with rheumatoid arthritis, when it assumed a most severe and intractable form; and with fibrositis and neuritis. There was a close association between psoriasis and the rheumatic group of disorders. In both there might be aetiological focal sepsis, or it might be absent. The essential lesion in ordinary psoriasis was a minute epidermal abscess in the upper layers of the rete Malpighii, due to the migration of leucocytes from the papillary vessels through the interepithelial channels. In this way a sort of tunnel was formed leading from the summit of a papilla through the rete. The Malpighian cells at this point became swollen from intracellular oedema, and failed to produce keratohyalin, so that the stratum granulosum was absent and incomplete keratinization of the horny cells resulted. The leucocytes became imprisoned in the upper layers of the rete to form the "abscess," which was only clearly seen when the exocytosis was extensive. The epidermis as a whole was acanthotic, and the interpapillary portions were lengthened, but the epidermal strata were reduced in number above the papillae. In the dermis the papillae were elongated and oedematous. The complications in psoriasis included: a general exfoliative dermatitis, sometimes due to the injudicious use of irritating applications, such as chrysarobin or cignolin; and an exfoliative dermatitis in combination with a streptococcal septicaemia. The relation to psoriasis of the so-called pustular psoriasis of the extremities was still doubtful; the pus was almost invariably sterile, and sometimes vesicles with almost clear contents were present. Dr. Barber thought that these sterile intra-epidermal pustules were merely a greatly exaggerated form of the ordinary microabscesses of psoriasis. In this condition focal sepsis, particularly in the tonsils, was more often of aetiological significance, and complete cure had followed tonsillectomy; in some cases, however, no evidence of sepsis could be detected. There was no doubt that psoriasis generally was in some cases unfavourably influenced by acute or chronic streptococcal infection, particularly tonsillitis, and that arthritis or other rheumatic manifestations were commonly associated with the eruption.

Dr. Barber concluded with a lantern demonstration of the various types of eczema and psoriasis, and of the experimental reactions which had disclosed the provocative agent in certain cases of eczema.

The following are the subjects, dates, and fees of a series of international medical post-graduate courses to be held in Berlin next spring: the practical results of recent research work in internal medicine, February 24th to March 4th, RM. 50; syphilis of the internal organs, March 5th to 7th, RM. 20, or RM. 10 if taken in conjunction with the previous course; tuberculosis, March 16th to 21st, RM. 50; obstetrics and gynaecology, March 23rd to 28th, RM. 50; *x*-ray diagnosis and radiotherapy, April 9th to 14th, RM. 70; abdominal surgery, April 20th to 25th, RM. 70. Special courses in all branches of medicine, with practical work at the bedside and in the laboratory, are held each month, the fee being RM. 50 to RM. 80 for eight periods of two hours each. For further information application should be made to the Geschaftsstelle der Berliner Akademie für ärztliche Fortbildung, Robert Koch Platz 7, Berlin, N.W.7.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

Monkey Malaria

SIR,—The observation that the species of plasmodium which exists as a harmless commensal in the blood and tissues of the common Malayan monkey, *Silenus irus*, when injected into the common Indian monkey, *Silenus rhesus*, produces a virulent infection has led to an enormous amount of work with monkey plasmodium. This has had an important bearing on many aspects of the malaria problem, and the bibliography of the subject must now run into at least a hundred papers. In view of this, I feel that the facts regarding the first making of this observation should be recorded correctly.

While examining the blood of some monkeys on which it was proposed to carry out certain experiments in connexion with investigations on the kala-azar transmission problem, Dr. Campbell, who was working under Dr. Napier's direction, noted and drew the latter's attention to an unusual body in one of the red cells. On further search other similar bodies were found, and it was decided that they were certainly protozoal bodies, and probably plasmodia. Dr. K. V. Krishnan was also present in the laboratory at the time, and agreed with this opinion. Dr. Napier, who had examined the blood and organs of a very large number of monkeys during his ten years' experience at the School of Tropical Medicine and had never encountered a plasmodial infection before, knowing that for many years it had been the dream of the protozoological department of the school to obtain a monkey plasmodium strain, took the blood from the infected monkey and inoculated it into three other monkeys. Two of these were of the same species as the first (wrongly identified for him as *Cercopithecus pygerythrus*) and the third was a *Silenus rhesus*. In this third monkey, after an interval of nine days, a fulminant infection, of the type with which we are now familiar but which at that time was the first of its kind to be observed, occurred. Knowing that we should be interested in the strain from a protozoological point of view, he handed over the original monkey to my assistant, Dr. B. M. Das Gupta, who maintained the strain by passage from monkey to monkey until my return from leave, when we carried out the human infection experiments and studied the morphology of the parasite (Knowles and Das Gupta, *Indian Medical Gazette*, 1932, lxvii, 301).

In your very interesting leading article of October 12th you give the credit for this original observation to myself and Dr. Gupta, and you have apparently overlooked Drs. Napier and Campbell's paper on the subject (*Indian Medical Gazette*, 1932, lxvii, 246). However, as in the case of many other important observations, luck played a very important part. Dr. Napier has often pointed out to me that had there not happened to be at that time in Calcutta a glut of *Silenus irus* monkeys and a scarcity of *Silenus rhesus*, normally the cheapest monkey available in India, and had he not happened to include one of the latter species among the three he used for passaging, the observation might not have been made for many years.—I am, etc.,

R. KNOWLES,
Lieut.-Colonel I.M.S.

Department of Protozoology, School of Tropical Medicine and Hygiene, Calcutta, Nov 8th.

Poisoning with "Meta Fuel"

SIR,—Dr. Alistair French is to be thanked for recording his case of poisoning by "meta" (metacetaldehyde) (*Journal*, November 16th, p. 974). In 1928 I published two such cases,[1] and could find in the literature only four instances—all Continental cases. Dr. Roche Lynch tells me that last year he was able to collect records of twenty-four published cases involving six deaths. It is therefore desirable that such cases as occur should be recorded so that the possible dangers of "meta fuel" may become more widely known.

"Meta" is essentially, as Dr. French says, toxic to the central nervous system, producing delirium, coma, tetany, and convulsions, the last of which may be the cause of death. Clinically, the most important point is that the symptoms of poisoning may be delayed for some hours. In the cases which I published a boy of 16 years, who had eaten about 5 grams of "meta" without vomiting, began to be delirious after seven hours, and the first convulsion occurred after twelve hours. Convulsions continued in bouts for the ensuing fourteen hours. In the second case a boy of 5 years, in spite of repeated vomiting and one gastric lavage, became drowsy and rigid after five hours, and had his only convulsion nearly seventeen hours after eating "meta."

The delay in the appearance of toxic symptoms is of twofold importance. First, if the poisonous properties of "meta" are realized, there is ample opportunity to institute treatment; and, secondly, it would be very hazardous during the first hours to refuse to treat energetically on the ground that no harm appeared to have followed the swallowing of the "meta."

It is not, I think, altogether settled that "meta" only becomes poisonous when depolymerized into acetaldehyde, and Dr. Roche Lynch kindly directs me to a paper by Petit and Andistère,[2] in which they claim that by injection experiments in animals it is shown that "meta" itself is the cause of the symptoms. According to which view is taken, the delay in the onset of symptoms would be due either to the comparative insolubility of "meta" or to the time needed for depolymerization to occur.

With regard to the directions for treatment quoted by Dr. French, the necessity for alkaline lavage of the stomach and colon and the use of a purge may be certainly accepted. It seems, however, a pity to make a special point (item 6) of "no narcotics if possible." I feel strongly that after the eliminative treatment is completed the patient should be kept under the influence of some such sedative as chloral in an attempt to prevent the convulsions that are so likely to occur.—I am, etc.,

REGINALD MILLER, M.D., F.R.C.P.

London, W.1, Nov. 15th.

X Rays as a Therapeutic Agent

SIR,—Dr. Herbert Brown's plea for the more frequent use of the *x* rays as a therapeutic agent (*British Medical Journal*, November 16th, p. 970) is one which should claim wide attention. The proof of their undeniable efficiency and value lies in the constantly extending field of their use during the past thirty years.

The remarkable action of *x* rays upon chronic tuberculous ulceration is alone sufficient to secure to *x*-ray therapy a high place among curative methods. Dr. Brown mentions quite a number of other directions in which *x* rays are of great therapeutic value, and among them mentions that "some cases of chronic arthritis may derive benefit from *x*-ray radiations." A large number of cases of arthritis have been treated by this means over a number of years, and I can vouch for their extreme usefulness in this direction.

It is a well-established fact that the *x* rays have the power of either stimulating cell growth or of destroying it, according to the quality and quantity of the rays administered, and it is also accepted that they have a greater effect upon cells of low organization than upon those of a higher state of development. It therefore follows that a dose of *x* rays can be administered in such manner that the proliferation of granulation tissue which takes place in the shape of a pannus in cases of rheumatoid arthritis can be checked and the granulations destroyed and at the same time the healthy normal tissues remain unhurt. Bearing this in mind I have employed the *x* rays in those cases where a granulation pannus is present or about to be formed, and have every reason to consider that *x* rays employed in this direction are superior to any other form of treatment.

The suggestion of Dr. Brown that *x*-ray therapy be employed in cases of subacute bacillary endocarditis is one which should encourage a trial, in view of the known inhibiting effects of *x* rays in other cases of bacterial infection.—I am, etc.,

London, W., Nov. 19th. CHRISTOPHER KEMPSTER.

Inexpert Radiography

SIR,—A danger is in our midst, and it is high time that the attention of the profession were drawn to it. I refer to the increasing employment of *x*-ray apparatus by those not qualified to use it, both medical and lay, and of the apparent trust that is placed in its use by the profession. It seems that many medical men regard the mere possession of an *x*-ray set as the only requirement, apparently forgetting that experience in its use and in the interpretation of the radiographs is of even greater importance.

A case in point. This week a surgical colleague whom I have known for twenty-one years called at my house with about half a dozen large *x*-ray films and asked for my opinion on them. I asked for details as to the case, and he told me the following story.

He had been called in consultation to a town of some 6,500 inhabitants from his centre of 120,000 inhabitants, where several radiologists are at work, to see the wife of a local general practitioner, the patient being aged some 70 years. An opaque meal examination was urged, and it was suggested that the patient should come to the town of 120,000 inhabitants to one of the radiologists for the purpose. The doctor's reply was that there was a quite good *x*-ray plant in the small town and there was no need for the patient to come to the larger one, so the surgeon left, feeling very dissatisfied. A few days later the films were sent to him with a covering letter saying that perhaps he would give his opinion, as there did not appear to be much amiss.

The films consisted of a poor radiograph showing a very indifferent view of the stomach, a still less useful view of the duodenum, shown only once in each case and quite useless from the point of view of diagnosis. Some further views showed that the stomach and duodenum were empty, but there was no sign of in how long a time this had been accomplished; the colon was poorly filled and quite insufficiently outlined in the upper sections for diagnostic purposes, while the descending colon was studded in its lower two-thirds with the most obvious diverticula that anyone could wish to see; there was no opaque enema.

Surely it is not right that one of the most useful adjuncts to medical diagnosis should be used in this manner, and what is the more surprising is that a colleague of very many years' experience in general practice should allow his wife to be mishandled in this manner.

A further case of very recent months—that of a foot in a labouring man who was brought to hospital in the same large district of 120,000 inhabitants, and who had been

[1] *Arch. Dis. in Child.*, 1928, iii, 292.
[2] *Ann. Med. Leg.*, 1933, xiii, 449.

x-rayed in a cottage hospital some thirty miles away, pronounced normal, sent back to work and told not to fuss. A swelling, with pain and inability to put the foot to the ground, developed. The patient changed his doctor, was brought by the second doctor to the hospital, where the radiologist saw, from the films which the patient had brought with him from the cottage hospital, that three metatarsals were fractured and shown in the cottage hospital films though missed at that hospital, while the radiographs taken at the larger hospital showed that the positions, though good at first, now were very poor ; hence pain and swelling.

May I urge, Sir, through your columns, that the profession take this matter to heart, that they realize its dangers, and appreciate that the mere possession of an *x*-ray set, however efficient in itself, is not all that is required for a diagnosis. In my view it brings discredit not only on radiology but on medical practice as a whole. —I am, etc.,

November 8th. RADIOLOGIST.

Medical Science and Social Progress

SIR,—Human genetics must inevitably become the most important social and scientific problem of the next few decades, since it must be solved if the human race is to make any serious progress towards something better and not towards something worse. I admire Lord Dawson's courage in being the first to put this problem seriously before the public, and I hope that others, of whom I know there are many, will assist to the best of their ability in attempting to educate not only the public but our own profession in the facts that have to be faced. That the facts are unpalatable and the necessary conclusions even repulsive to most people will not make the task any easier. The facts are obvious, although it is easy enough to put different interpretations upon them, or to do as Dr. J. J. McNamara, in your issue of November 16th, does, and describe Lord Dawson's suggestions as " eugenic tinkerings."

Modern civilization, by means of medical science and hygiene, has succeeded in reducing the mortality rate very considerably. The infant mortality rate to-day in the worst slum in London is less than that in the Royal Palace in the time of Charles I. This in itself would appear to be good, but what is the result? The individuals with bad hereditary taints now tend to survive and breed, whereas they used to die and only their better brothers and sisters survived. The result is over-population and a steadily increasing number of individuals who carry either as dominants or recessives serious hereditary taints. In the old days excessive populations were dealt with by natural processes, starvation, and plague, and in more recent times by using them as " cannon fodder." Neither of these admittedly successful methods of dealing with excessive populations can commend themselves to modern thought. But what are we to put in place of them? For something must be done or the same old methods will inevitably come into operation again. It is surely time that the more intelligent members of the human race *began* to consider how such problems may best be dealt with, and if they apply logical thought instead of sentiment they will realize that sterilization of the unfit is only the very beginning of what must be done to substitute intelligent supervision of breeding for the natural processes which, for thousands of years, have prevented excessive over-population and the automatic increase in hereditary deficients. We have shown no hesitation in controlling both the numbers and the quality of our domestic animals by supervising their breeding and destroying or preventing unsatisfactory progeny. Are we too cowardly to apply the same methods to ourselves? —I am, etc.,

J. P. LOCKHART-MUMMERY, B.C., F.R.C.S.

London, W.1, Nov. 18th.

War and Peace

SIR,—It interests me very much that your correspondent, Dr. A. J. Brock (November 9th, p. 925), sees some connexion between the war spirit and, on the one hand, lack of opportunity in the world of to-day for individual development and self-expression and, on the other, the crowd psychology he associates particularly with great cities. Doctors increasingly recognize that the thwarting of a person's individuality is a potent cause of neurosis, and that discouragement and unhealthy repressions frequently produce other forms of ill-health. The crowd is too often made up of such individuals. Furthermore, such crowds easily become mistrustful and unhappy, and tend to try to compensate their condition by developing resentment and a desire for power.

Dr. Brock maintains that the crowd is in essence non-social, and that individuality is more likely to be thwarted in urban than in rural districts. Such views are a little difficult to follow. I am not sure he is right in his whole-hearted condemnation of large metropolitan cities. But I am largely with him in desiring to see a better distribution of population and more interpenetration of rural conditions and pursuits with urban attractions and amenities, and I have devoted over 400 pages to this thesis in my recent book on the growth and distribution of population. I have dealt, too, in those pages with the connexion between war and lack of opportunity.

The overgrowth of cities brings with it many problems of housing, transport, sanitation, and physical health. I believe the causes leading to such overgrowth, rather than such overgrowth itself, entail psychological faults in individuals and crowds, and constitute the most important influences producing strife and wars. If this be so it is necessary to understand these things not only for reasons of bodily health but also in order that we may cultivate sounder conditions of the individual and the social mind. It may be that one of the facts which should dismay us most in these days is the fact that more and more people are crowding into a few big cities.

In many countries one-sixth or one-seventh of the total population dwells in the capital town or in the two largest cities. In England and Wales 8 millions out of 40 millions live in Greater London. In the U.S.A. 18 millions out of 124 live in Greater New York and in or around Chicago. In Denmark about one-quarter of the total population lives in Copenhagen. The Regional Town-Planning Committee for Greater London estimated in their first report that in less than two hundred years' time the total population of Greater London would amount to 21,454,000 persons. Already some of those interested in sewage disposal calculate it is necessary to plan for a population of 13 millions in Greater London. These are but a few of many similar facts. A study of the causes leading to such agglomerations of population is specially urgent if there is really, as I believe, a close connexion between them and war ; for should civilization drift again into widespread war—and there are signs that this is happening—that may well spell the end of civilization. Any tendency which seems to be breeding the war-like spirit should be examined. To discover and counteract such influences would build the foundations of a saner and richer society, and eventually lead to a healthy, happy, and peaceful world.—I am, etc.,

Mundesley, Norfolk, Nov. 11th. S. VERE PEARSON.

SIR,—I am grateful to Dr. Norman Macfadyen for his support, and in view of his general approval of my thesis regarding the pathology of war he and I do not need to argue as to whether the League of Nations has been helpful or harmful in this matter. He agrees that the State appears to be deliberately fostering those standard-

ized urban conditions which bring about mob psychology, and so lead to war. "Happy family life," he tells us, "is the foundation of a stable State" (he means presumably "of stable social conditions"), and he adds that such life is "impossible or very difficult" in the great cities. Will Dr. Macfadyen agree with me that not only happy family life, but also happy *neighbourhood* life, is the foundation of social stability, and that to the extent that these two disappear so does the stability of society disappear? This means that these two are the first and not the last conditions which need to be re-established, and that if this is not done, and done very quickly, world war will inevitably come, involving, as I at least believe, the end of the present State system.

Will Dr. Macfadyen further agree that the one method which can now save civilization is in essence the application on a large scale of the method which the psychotherapist applies to his neurasthenic patients? Treatment of the neurasthenic is essentially re-education. Re-education is a form of education; and education has been defined as "the provision of an environment." But the State, as it comes more and more into power, deliberately de-educates the mass of people, by providing them with an environment in which expression of individuality becomes more and more difficult, and crowd psychology (the forerunner of war) grows. The modern State system appears to me to be the result of bad sociological thinking, and war, with modern instruments of slaughter, will be "Nature's" way of ending it if the people themselves do not now obviate destruction by initiating reform. The people have for too long been making machines and then putting themselves into the power of these machines. The result is that civilization is now run according to mechanical rather than human (and humane) principles. The people must act for themselves, and the best way of acting will be through a general exodus to the country. There it is at least possible to reconstruct social life on a family and neighbourhood basis, whereas in the great city it is not. And I do not forget that these new "independent" units will have to be to a large extent economically independent also: this is too big a topic to discuss here, but in any case there is in the country land available for growing food, whereas in the city there is none. My proposed treatment may appear "drastic," but I think war will be more drastic still.

The medical profession professes to stand for the preservation of life. Can it not at this great crisis speak with something like unanimity? Or is it to be content with the task of organizing itself as a great and respectable "State department"?—I am, etc.,

North Queensferry, Fife, Nov. 17th. A. J. Brock.

Chloroform Anaesthesia

Sir,—I wish to thank Dr. A. Goodman Levy for the information kindly supplied in his letter in the *Journal* of November 9th.

It is of considerable interest to know that experimentally the cat's heart cannot be easily excited to exhibit ventricular extrasystoles under chloroform anaesthesia unless a certain dosage has been administered. Dosage here will depend upon: (1) concentration of vapour inhaled; (2) rate of ventilation of the lungs; and (3) length of time administration has lasted. The rate of induction in the human subject likewise depends upon concentration of vapour and volume breathed per minute. In anaesthetizing the human subject with chloroform, if we begin with a very dilute vapour and gradually but deliberately strengthen it, the three stages of anaesthesia are easily recognizable. Can these stages not be recognized in the cat? We at least know that ventricular fibrillation may result after a fit of struggling, comparable to the "unconscious excitement" in the human subject, and we know that this occurs *at the end of the second stage*. We gain little information from mere knowledge of concentration of vapour inhaled, and it is a matter of clinical experience that dosimetric methods of administering chloroform have been disappointing.

I should be grateful if Dr. Levy would indicate the points in my letter of October 26th which he finds are not in accordance with experimental observations.—I am, etc.,

Dundee, Nov. 12th. Arthur Mills.

The Status of the Ship Surgeon

Sir,—May I add some remarks to the interesting correspondence in the *Journal* on the status of the ship surgeon? I can only speak from an experience of three years' continuous service in big ships on the Australian mail run and two odd voyages across the Western Ocean—also in big ships. Conditions on small ships with very few passengers are, of course, different. In my experience the status of the surgeon depends (*a*) on himself, and (*b*) on the shipping company concerned.

The shipping companies would, I think, help to raise the status of their surgeons in the following ways. They should not sign men on from voyage to voyage, but should take them in on probation and then gradually increase the pay with experience until a pensionable rank is attained. A voyage off on full pay should be given every two years for an approved post-graduate course. Retirement should be compulsory at 55–60, and a pension corresponding to the length of service should be given. These measures would make the service comparable with that in the Royal Navy. I would suggest also that no surgeon should be taken on who has not done at least one year in a mixed general practice, as tact and ability to handle patients are of more importance than house appointments and surgical qualifications. Whenever possible the appointment of surgeons should be in the hands of a medical superintendent who has been to sea himself and knows the conditions.

In conclusion, I venture to think that if medical men were able to look forward to increasing pay and a pension on retirement many more would join the sea service as a career—a service which offers a life of travel, interesting social intercourse, and good and varied medical experience. At the moment, alas! it offers nothing further.—I am, etc.,

Thame, Nov. 13th. J. Leigh Cox.

Sir,—Having recently returned from a voyage round the world in a cruise liner, I am interested to read the letters concerning "ship doctors." The only one that puts the matter clearly and justly is Dr. John Hill's in your issue of January 5th. On September 7th, 1930, I made a report to the medical superintendent of the company in which I served, as follows:

"I have the honour to submit the following suggestions for the improvement of the medical service in this ship, based on the experience of the last world cruise. At once I should like to make the point that, in my opinion, the medical service of a ship has a double function—first, the prevention and cure of disease amongst crew and passengers already embarked, and, secondly, the purely commercial one of attracting trade in terms of future passengers who can be assured either that, becoming sick, they can receive efficient and modern treatment, or, being sick, can have their treatment carried on in the manner to which they are accustomed. It is immediately conceded that there is a wide difference between the necessities of a ship doing transatlantic service

only and a world cruiser. The former is practically an emergency service, while the latter involves all the requirements of a first-class hospital.

"The publicity given to medicine and surgery during the last few years, especially in the United States, has produced a type of passenger acutely critical of the doctor and his equipment. The social class for which the company caters on its cruises expect the same excellence in the medical department as they find justly emphasized in all the other departments. The surgeon must be equally capable of opening an abdomen one day and dealing tactfully with a psychiatrical problem the next. To attain to and retain this degree of skill in the profession involves much hard and constant study on board, amplified by hospital visitation ashore when opportunity offers.

"Few people, either of the lay public or the medical profession itself, realize the serious responsibility devolving upon the medical officer in charge of that isolated community which is a cruise ship. Shortly, the workman should be worthy of his tools, but, by the same token, the tools should be worthy of the workman. As you know, I have always been of the opinion that, as the company allows private practice on board, a medical officer is in honour bound to supply for that practice a reasonable amount of professional equipment. The equipment supplied by the company is excellent in both quality and variety, but in order to be abreast of advances in treatment and to satisfy the demands of an enlightened public both the company and the medical officer must from time to time augment their resources."

Here I enumerated the various additions to the service which I had already got on board, and which I proposed to get in order to have a first-class service. Before I was satisfied there had been added *x* rays, ultra-violet light, diathermy, electric refrigeration in the hospital, air conditioning for the wards, an operating chair for the consulting room, and many other improvements, which cost altogether close on £1,000. I here added:

"This expenditure I consider my proper contribution to the efficiency of our department, and it greatly adds to my pleasure in the work, as well as my *amour propre* as a company's medical officer, when associating, as we often do, with eminent scientific men of other nations. It might be pointed out here that any addition to equipment naturally affects directly the health of the crew in terms of quicker return to duty and in their increased confidence and happiness."

Here I made a plea for better hospital and consulting room space and furniture, saying:

"I think it may be conceded that a hospital should have at least the same comfort and convenience as is found in a passenger's cabin. At present this is not the case, and, I regret, has often been commented upon by passengers."

After submitting my idea of what should be done to make the medical department complete and in line with the other departments of a "luxury liner," I ended thus:

"Finally, I would wish to assure you, Sir, that I fully appreciate and understand the urgent need for economy in all the company's undertakings at the present time, and I present these suggestions as an ideal in efficiency towards which to strive, being willing and eager to contribute my share as a duty and a pleasure."

Much has happened since November, 1930. British shipping has had a hard time competing with subsidized foreign lines, and the medical departments, being treated as non-productive, were the first to suffer. During the last year I have visited new ships of four foreign lines, and found the medical equipment of the highest order, everything which I had to provide out of my own pocket supplied by the companies. In my opinion, until the Government take over the care of the sailor, who constitutes the general public afloat, as they have taken over the general public ashore, a grave injustice is being done to that part of our nation who have to go to sea. This nation finally has to depend for its life on ships, and the ships on their crews. The Navy exists for the Merchant Marine, and the men (and women) of the Merchant Marine are entitled to as efficient medical service as the Navy man.

Only a man without other financial obligations could afford to do what I did; no married man could have done so on his pay, and few married men can afford either the money or precious time ashore with their family to take the "ship surgeons' post-graduate training course" as offered through the British Medical Association committee. Only a very few companies recognize the desirability for their business and their responsibility to their crews of the surgeon being given not only opportunity to take this excellent course, but being *compelled* to take it. Medical status is a personal matter ashore or afloat, but until shipping companies are compelled by law to provide proper medical attention for their crews, or a Government service is instituted, the odium "ship doctor" will remain in the minds of both the general public and the medical profession. The amount of work to be done at sea varies, as it does on land, but the responsibility does not; no medical man ashore is so utterly dependent on himself as a ship doctor, no section of the public so fearfully placed as the crew and passengers of a ship at sea. Most doctors afloat would take this course because they know only too well the need of it, and the reason more do not is economic; but to argue whether there should be such a course is to descend to the realm of the philosophy of the obvious.—I am, etc.,

London, Nov. 5th. G. JAMESON CARR, M.B., Ch.B.

SIR,—As several letters have appeared recently in the *Journal* on this subject, it may be of interest to medical men ashore to know the type of work that goes on aboard a large liner. Below is a complete list of cases treated during a three-months cruise this year. This is an average voyage, and not at all exceptional. Duration of voyage was ninety-four days; average number of passengers was 320; number of crew was 540.

Acute appendicitis (appendectomy performed)	1	Pleurodynia	4
Acute retention (suprapubic cystostomy performed)	1	Acute coryza	48
Cerebral haemorrhage	1	Acute sinusitis	8
Fractures (including fractured spine)	11	Acute tonsillitis	28
Dislocations	1	Trench mouth	1
Ruptured semilunar cartilage of knee	1	Foreign body in throat	1
Sprained joints	12	Acute conjunctivitis	7
Injuries and wounds	83	Foreign body in eyes	9
Burns and scalds	20	Acute otitis media	5
Whitlows	4	Chronic otitis media	4
Boils and abscesses	26	Wax in ears	22
Carbuncles	1	Furunculosis of ears	12
Acute bursitis	3	Carcinoma of stomach	1
Acute tenosynovitis	1	Indigestion and gastritis	22
Sebaceous cysts	7	Climatic diarrhoea	44
Insect bites	7	Acute catarrhal jaundice	1
Heat exhaustion	5	Secondary anaemia	1
Sunstroke	1	Acute gout	1
Prickly heat	6	Neuralgias	8
Skin conditions	9	Menopause	2
Coronary occlusion	1	Hysteria	2
Hyperpiesis	3	T.A.B. injections	15
Pneumonia	2	Ingrowing toenails	3
Pleurisy	1	Dental extractions	48
Acute bronchitis	1	Sea-sickness	9
Chronic bronchitis	9	Intestinal worms	1
Bronchial catarrh	32	Renal calculus	2
Acute laryngitis	11	Chronic nephritis	1
Influenza	13	Haematuria	2
		Gonorrhoea	7
		Syphilis	2
		Hydrocele	1
		Acute fibrositis	14
		Sciatica	1

Total number of cases, 611.

The medical staff consisted of surgeon, assistant surgeon, three State-registered nurses, dispenser, and hospital attendant.—I am, etc.,

Southampton, Nov. 15th. E. F. D. OWEN.

SIR,—I should like to congratulate Dr. Douglas Gray on his carefully reasoned letter of November 16th, but the main point of my letter of September 14th seems to have been missed by "Occasional Ship Surgeon." To meet his objections, however, to the advisability of urgent operative measures being undertaken at sea, I am reporting a small series of cases showing the results of operations so performed, for I have been able to investigate other cases operated on by colleagues in the company to which I was temporarily attached. Nine ships made fourteen voyages, and there were fifteen major operations, eleven of them being for abdominal conditions. The following is a list, and the period covered is two and a half years.

Acute appendicitis	9	Compound fractures ...	2
Strangulated hernia ...	1	Divided tendons	1
Acute intestinal obstruction	1	Amputation of finger ...	1

All these cases recovered. Nearly all the cases of appendicitis were gangrenous, and many needed drainage. In only two cases were other doctors on board, and in all except one the operation was performed by the ship surgeon himself. In this, although competent to undertake operative surgery, the ship surgeon deemed it advisable for the safety of the patient that he should act as anaesthetist, as he had had an unhappy time when operating on a previous voyage, handicapped by a very bad anaesthesia.

I hope the day is not far distant when the ships of most companies are as well equipped in the medical department as are the ships of the company to which the above notes refer. Their surgeons are keen, but I do think that not only this company, but also the others, should keep them so by enabling them to attend courses at intervals, and indeed by encouraging them to do so.—I am, etc.,

Herne Bay, Nov. 16th. J. R. HAMERTON, M.B.

SIR,—The letter by "Occasional Ship Surgeon" on the status of the ship surgeon is worthy of very careful consideration. Its main theme is the unreasonable responsibility the ship surgeon assumes in undertaking a major operation at sea, and is a protest that whenever he decides to do so "the chances are almost certainly against the patient." Such an opinion is so alarming that in the interests of the travelling public and the ship's personnel it should not be made without an intimate knowledge of case records.

This point has previously arisen, and with considerable curiosity I was able to examine the journals of a well-known company. The remarkable feature of this investigation is the astonishingly small number of abdominal operations and the fairly considerable number of operations performed after accidental injuries. So far as I could learn, the abdominal operations numbered eight, with one fatality only, and that an inoperable cancer in a waiter, who died shortly after being put ashore. The number of crew and passengers of this company amounts to over a million a year. It is true that the crew were all submitted to an intensive examination every year and an ordinary examination every voyage. The incidence of trouble likely to arise would, so far as the crew is concerned, be therefore small. The need for major operations at sea must be rare, and I have no doubt that there are some ship surgeons who, throughout their career, have never had to contend with them.

The letter concludes as follows:

"But the fact remains that, unless the shipping companies can procure the services of competent 'surgeons' (not physicians or general practitioners without experience of major surgery) for every ship—an ideal which is hardly attainable—the acute abdominal emergency at sea constitutes an almost hopeless problem for the ship surgeon who has not specialized in surgery."

Now the chief major emergency at sea appears to be the appendix, more rarely the strangulated hernia and ruptured duodenal ulcer. It is not far short of absurd to state that the responsible ship surgeons nowadays engaged by shipping companies are incompetent to deal, at any rate, with the first two emergencies; the above facts speak for themselves. If a surgeon who is incompetent is appointed to a ship, then the fault lies with the shipping company's selection. There must, however, be a large number of candidates who, like the writer in question, feel incompetent, and their diffidence is no reflection on their ability; their attitude, indeed, represents the trend of medical development.

The growth of specialization has flourished in all sorts of unexpected ways since the advent of the National Health Insurance Act; where formerly the general practitioner performed his own operations, he now, with certain rare exceptions, transfers all his major and most of his minor surgery cases to the voluntary hospitals, to their financial embarrassment. This relegation of responsibility characterizes other than panel practice; the general practitioner is fast becoming a so-called "consultant of consultants," unless he happens to be the surgeon of a unit or so-called firm of partners. It is obvious for this reason that some shipping companies insist on their applicants for permanent appointments having at least held house appointments, and for temporary appointment employ only general practitioners with surgical experience.

Your correspondent's letter has considerably more importance than would at first appear; it is, in fact, a denunciation of the past and present medical curricula if the object of medical education was and is to enable the qualified man to assume surgical responsibility. I venture to say that two-thirds of the student's time was taken up by surgery and its incidental subjects. Before the advent of the National Insurance Act surgical knowledge and skill was essential to the practice of the general practitioner, and it is still essential for the naval and army surgeon, for practitioners in remote areas, and most certainly for ship surgeons. The ship surgeons are doing to-day exactly what good average practitioners twenty-odd years ago were doing in all industrial and rural areas. They are, in fact, putting into practice what occupied a major portion of their student life. The conditions at times at sea under which operations have been performed, and performed successfully, would make the ordinary shore surgeon pause, accustomed as he is to every help and a stable earth.

Is it to be wondered at that the modern ship surgeon, as Dr. Gardner pointed out in a previous week's letter, avails himself of all post-graduate opportunities in order to improve technique and lighten his task? Is it not, on the other hand, obvious that where, as in the smaller shipping companies, temporary men only are carried, and where, of course, the question of post-graduate study does not arise, the choice of ship surgeon should be one of the utmost care, not only that he should possess the right character and temperament, but the necessary experience to fit him against these difficult emergencies at sea? The permanent ship surgeon should be drawn, therefore, from those who have held house appointments in reputable and, if possible, teaching hospitals, and/or have had some experience of major surgery.

Lastly, it is essential in the case of the larger shipping companies that they should avail themselves of the facilities offered by the courses, organized through the British Medical Association, by the Greenwich Seamen's Hospital Society. These courses, of two of which I have personal knowledge, directly relate to the full duties of a ship surgeon. There is, as far as I can see, not the slightest redundancy anywhere. I am sure my colleagues

who attended the special courses will agree how admirably these met our specific wants.—I am, etc.,

November 12th. "ONE-TIME SHIP SURGEON."

⁂ This correspondence is now closed.—ED., *B.M.J.*

Treatment of Chorea

SIR,—After reading Dr. Hinds Howell's article on chorea one is made to feel that no progress in dealing with this disease has been made during the last fifty years. The fact that so many drugs are employed by Dr. Howell suggests that not one of them is satisfactory, while his emphasis on the use of salicylates and aspirin is most misleading. He tells us that "as chorea is of rheumatic origin" salicylates should be used. Surely a statement of this sort needs considerable modification, especially as he does not say a word about the origin of acute rheumatism.

Osler years ago referred to a class of "absolutely bright active-minded children" as being specially predisposed to chorea, but Dr. Howell tells us nothing about predisposition, notwithstanding its great importance. I have pointed out in my book and in the *Medical Officer* of March 1st, 1924, that all cases of chorea and acute rheumatism are derived solely from children of the "acid class," the *p*H of whose blood and exudations tend to the acid side. Dr. Halls Dally confirmed this statement in the report of the Marylebone Children's Rheumatism Centre for the year 1929. These are the children who are deprived of the lime-containing foods such as milk and eggs, whilst aggravating that deficiency by a partiality for meat and the acid condiments, and I throw down a challenge to Dr. Howell to bring forward a case to disprove this statement. This being my position I feel that a deficiency of calcium ought to be treated accordingly. My experience has shown that children suffering from chorea improve much more rapidly under calcium and parathyroid than under dopes such as aspirin and the salicylates, which have no effect in preventing cardiac complications. When there is marked restlessness I have pointed out that the use of subcutaneous injections of distilled water is most valuable, as it nearly always induces a refreshing sleep.

Dr. Hinds Howell's reference to the induction of "protein shock" is not calculated to impress one with its value as a means of treatment, nor does he seem to have much faith in it. If so, can it in any way be justified? In conclusion, he lays it down that the choreic child should not be "overloaded with school work"; but should any child be overloaded?—I am, etc.,

Swansea, Nov. 10th. G. ARBOUR STEPHENS.

A Generous Thank-offering

SIR,—I shall be obliged if you would allow me a small space in your columns in order that I may express our thanks to a number of German-Jewish doctors who have been compelled to leave their country and to take refuge in this country. In the midst of their difficulties and distress they have collected in small sums over ten pounds for the Royal Medical Benevolent Fund. They have asked us to accept it as a thank-offering for the kindness and hospitality that has been shown to them and their unfortunate countrymen by England. I think that this kind thought on their part for our poorer brethren merits something more than the official acknowledgement of the contributions; hence this letter.—I am, etc.,

L. G. GLOVER,
Honorary Treasurer, Royal Medical Benevolent Fund.

11, Chandos Street, Cavendish Square, W.1, Nov. 18th.

Obituary

The death occurred, on November 11th, at his residence in Lenzie, near Glasgow, of Dr. WILLIAM B. ARMSTRONG, a well-known physician in the West of Scotland. He was born in 1870, and after graduating M.B., C.M. at Glasgow University in 1896, entered into partnership with the late Dr. Cowan at Kirkintilloch, and on his death took over the practice. He took a keen interest in local public affairs, and was a justice of the peace for the county of Dumbarton and also a member of the town council of Kirkintilloch. He was honorary president of the ex-service men's associations in both Kirkintilloch and Lenzie, and was an active member of the British Medical Association, having been chairman of the Dumbartonshire Division of the Association from 1922 to 1931. As a medical practitioner Dr. Armstrong enjoyed a wide popularity, and had a large practice in both Kirkintilloch and Lenzie. During the war he was medical officer to the 9th Argyll and Sutherland Highlanders, and early in the war went to France with the 51st Division, becoming later surgical specialist in a casualty clearing station. On his return he was presented with a public testimonial from the citizens of Kirkintilloch. Dr. Armstrong is survived by a widow, two sons, and two daughters, of whom one son and one daughter are members of the medical profession.

Dr. GEORGE WILSON BURN, a good example of the old school of general practitioners, died on November 11th at Cromer in his eighty-ninth year. He came of a medical family, for although his father was manager of Praed's Bank in Fleet Street, his grandfather, Dr. Barnet, had a large practice in Bow. An uncle also practised in Bow, and afterwards in Australia, and his elder brother practised in Balham. He was educated at St. Bartholomew's Hospital (where he was a scholar), and "clerked" for Dr. Gee and "dressed" for Mr. Callender, obtaining the M.R.C.S. diploma in 1873. After qualification he went into general practice in Brixton, retiring in 1901. Since then he lived at St. Albans and Cromer. All his life Dr. Burn took a keen interest in botany, and was an enthusiastic gardener. He was an expert in Esperanto, of which he was a valuable teacher, and regularly attended the international conferences. Though of a retiring disposition he was greatly beloved by a large circle of friends and old patients.

Dr. LLEWELLYN ARTHUR MORGAN of Liverpool, who died at Beckenham on October 30th, had been a member of the British Medical Association for forty-two years. He received his medical education at St. Thomas's Hospital and Newcastle-on-Tyne; in 1883 he graduated M.B. Durham, and obtained the diploma M.R.C.S. Four years later he proceeded M.D. In the earlier part of his career he was a member of the prison medical service, and held the posts of assistant surgeon at Holloway and Clerkenwell. In Liverpool he had been medical officer to the Orphans' Asylum and district medical officer to the Ladies' Charity. For many years he had been an active supporter of the work of the St. John Ambulance Association; he was chairman of the centre in Liverpool and an honorary associate of the Grand Priory of the Order of St. John of Jerusalem. He was recently promoted to Commander of the Order. He contributed articles on diverse subjects to medical periodicals. On his retirement a year or two ago he went to live at Caterham.

Dr. ARTHUR JAMES BRUCE LECKIE, whose death took place at Bath on November 7th, after a short illness, was one of the city's best-known physicians. He received his medical education at Edinburgh University, where, after a distinguished university career during which he successfully competed for a number of medals and prizes, he qualified as M.B., Ch.B. at the early age of 21. In 1912 he became M.D.Ed. (commended). After a short period as house-physician to the Royal Hospital for Diseases of the Chest, City Road, London, he was

appointed house-physician to the Royal United Hospital, Bath, and to the Royal Mineral Water Hospital. As a practitioner in Bath his services as an anaesthetist were at once in great request by surgeons, while his charming personality and exceptional medical gifts were not slow in making him one of the busiest practitioners in the city. During the war he served in the R.A.M.C. in France, attaining the rank of major, and on his return was anaesthetist to the Bath War Hospital, where he was in charge of a ward, and later was appointed anaesthetist to the Bath Pensions Hospital. In 1919 he was appointed to the senior medical staff on the retirement of the late Dr. Cave—evidence of the high opinion of his medical attainments held by his colleagues. Unfortunately he was unable to spare time from his practice, which by now was considerable, to take the Membership of the Royal College of Physicians in the two years allowed, so in 1921, to the great regret of his colleagues, he resigned. Perhaps, from his early association with the City Road Chest Hospital, Dr. Leckie, though attracted by all medical problems, was perhaps specially interested in tuberculosis, and while at the Royal Mineral Water Hospital carried out some valuable and exhaustive investigations into tuberculin reactions in arthritic conditions.

The death is announced of Professor ETIENNE of Nancy. He is best known for his studies in neurology, with special reference to poliomyelitis. In 1921 he played a prominent part in the treatment of poliomyelitis with Pettit's serum.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on November 15th the following medical degrees were conferred:

M.D.—D. B. Wilson.
M.B., B.CHIR.—D. P. King.
M.B.—*R. W. Ironside, C. W. Thomas.
B.CHIR.—N. C. Lendon.

* By proxy.

On November 18th Mr. James Dixon Boyd, University Demonstrator in Anatomy, was elected into a Fellowship at Clare College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on November 14th, when the President, Sir Cuthbert Wallace, was in the chair.

Mr. Victor Bonney was re-elected as the representative of the College on the Central Council for District Nursing for a period of three years.

Diplomas of Membership were granted to the 140 candidates whose names were published in our issue of November 9th (p. 930) in the report of the proceedings of the quarterly meeting of the Royal College of Physicians of London, as were the names of the nine candidates to whom the Diploma in Public Health has been granted, and the names of the eleven candidates who have received the Diploma in Child Health. Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London under the special conditions of the regulations, to L. M. Routh and S. T. Rowling.

Recognition of Hospitals

It was decided that the following hospitals, with the posts specified, should be recognized for the six consecutive months' post of resident house-surgeon or other responsible post in charge of general surgical patients in the wards of a general hospital required of candidates before admission to the Final Examination for the Fellowship:

Cumberland Infirmary, Carlisle (senior house-surgeon); Hammersmith Hospital, W. (first, second, and third assistants in the surgical service, and first, second, third, and fourth house-surgeons); Miller General Hospital, Greenwich, S.E. (resident surgical officer and first and second house-surgeons) (until July 31st, 1937).

The Council decided to guarantee a sum of £1,625 from the Prophit Trust towards the expenditure of the governing body of Radium Beam Therapy Research for the year March, 1936, to March, 1937.

The Buckston Browne Dinner

The eighth annual Buckston Browne Dinner of Fellows and Members was held in the Library of the College on November 14th, with the President, Sir Cuthbert Wallace, in the chair. After a general welcome to the guests the President said that the chief event of the year had been the visit of his predecessor in office, Sir Holburt Waring, to open the new home of the Royal Australasian College of Surgeons in Melbourne, and to convey to that body a message from the King. He (Sir Cuthbert), as senior Vice-President, had telegraphed to the President of the Australasian College a message "from brothers to brothers." Mentioning the primary Fellowship examinations now held in the Dominions, the President expressed the thanks of the Council to the examiners who made these long journeys from England. Another event of the year had been the defeat of the Osteopaths Bill, and in this he claimed that a notable part had been played by the representatives of the College—Mr. Elmslie, Mr. Souttar, and Dr. Graham Hodgson. Another name mentioned by the President which called forth applause was that of Mr. T. W. P. Lawrence, to whom he paid a tribute for all his work in the past as pathological curator. The Hunterian Museum, he said, was keeping well abreast of the needs of to-day under Dr. John Beattie and the curators. Down House was proving of inestimable value, and by the purchase of an additional piece of ground it was now surrounded by open country on all sides. Each year they had to thank Sir Buckston Browne for his benefactions at Downe and for this dinner. With this the President submitted the toast of "Sir Buckston Browne," which was received with enthusiasm. In a vigorous reply the donor of the feast, now in his eighty-sixth year, said that approbation from Sir Cuthbert Wallace was praise indeed. He thanked all present for joining in this social gathering; nothing but good, he felt, could come of an occasion when Fellows and Members dined in equal numbers at their College. Looking back over the achievements of the nineteenth century, Sir Buckston Browne noted that in that under-praised period came cleanliness, both personal and domestic, adequate sanitation, the revolution in surgery brought about by Pasteur and Lister, and the revolution in thought that followed the appearance of Darwin's *Origin of Species*. After John Hunter's time the College of Surgeons jogged along until, some ten years ago, it woke up to the need for biological research in surgery. The idea of Hunter's farm at Earl's Court was revived; and the research farm at Downe was already doing splendid work under Sir Arthur Keith as Resident Master, and Dr. Beattie, who had followed him as Conservator and Director of Research.

The following is a complete list of those present:

Council.—Sir Cuthbert S. Wallace (President), Mr. A. H. Burgess (Manchester) and Sir Charles Gordon-Watson (Vice-Presidents), Sir Holburt Waring, Bt., Professor Ernest W. Hey Groves (Bristol), Mr. F. J. Steward, Mr. C. H. Fagge, Mr. W. Sampson Handley, Mr. Wilfred Trotter, F.R.S., Mr. Victor Bonney, Professor G. Grey Turner, Mr. Hugh Lett, Mr. R. G. Hogarth (Nottingham), Professor R. E. Kelly (Liverpool), Professor Graham Simpson (Sheffield), Mr. A. E. Webb-Johnson, Mr. G. Gordon-Taylor, Mr. R. C. Elmslie, Mr. L. R. Braithwaite (Leeds), Mr. H. S. Souttar, Mr. W. Girling Ball, Mr. Seymour Barling.

Fellows.—Mr. A. S. Blundell-Bankart, Mr. L. R. Broster, Sir Buckston Browne, Mr. F. F. Burghard (Burton-on-Trent), Mr. H. Jackson Burrows, Mr. Robert Cooke (Bristol), Mr. R. K. Debenham (Birmingham), Mr. Harvey Jackson, Mr. R. Watson Jones (Liverpool), Mr. J. C. Leedham-Green, Mr. O. V. Lloyd-Davies, Mr. G. Percival Mills (Birmingham), Mr. John Morley (Manchester), Mr. W. G. Mumford, Mr. Lionel Norbury, Mr. Michael J. Smyth, Mr. W. G. Sutcliffe, Mr. H. W. Symons (Leeds), Mr. H. Bell Tawse (Nottingham), Mr. Cecil Wakeley, Colonel J. M. Weddell, Bt., Mr. James Whillis, Mr. N. G. Wigram.

Members.—Dr. G. G. Allan, Mr. L. D. Bailey, Dr. Frederick Barker (Parkstone), Dr. P. G. A. Bott, Mr. Arthur Bulleid, Dr. F. G. Caley, Dr. A. E. Carver (Torquay), Mr. F. L. Cassidi, Dr. F. B. Chavasse (Liverpool), Mr. W. H. Coldwell, Dr. Macdonald Critchley, Dr. Thomas M. Davie, Dr. H. P. S. Devitt, Dr. T. F. Fox, Mr. C. R. Edwards, Dr. David Forsyth, Dr. E. P. Furber, Dr. Harold Gardiner-Hill, Dr. L. P. Garrod (Harpenden), Dr. A. Hope Gosse, Dr. Arnold Gregory (Manchester), Colonel A. E. Hamerton, Dr. T. Lionel Hardy (Birmingham), Dr. Thomas H. Harker (Southport), Mr. A. G. Hewer, Mr. C. T. Holford (Burton-on-Trent), Dr. N. G. Horner, Dr. J. B. Howell, Dr. John T. Hunter, Dr. A. G. Maitland-Jones, Dr. Geoffrey Marshall, Dr. D. J. Martin (St. Leonards), Mr. William Neil Maclay, Dr. H. L. Oldershaw, Dr. T. Wilson Parry, Dr. Norman L. Price (Bristol), Mr. L. W. Proger (Pathological Curator), Dr. R. J. V. Pulvertaft, Dr. H. J. Roper (Leeds), Dr. M. Radford, Dr. E. T. Roberts (Glasgow), Dr. W. H. Scott-Easton (St. Mary Cray), Mr. E. T. Shorland (Westbury), Dr. J. H. Sheldon (Wolverhampton), Dr. G. Evan Spicer (St. Albans), Dr. Percy B. Spurgin, Mr. G. V. Steward (Fleet), Mr. Edgar Olive Turner (Great Missenden), Dr. G. de Bec Turtle, Mr. H. Stobie, Mr. H. S. Wacher, Dr. Cecil Wall, Dr. E. Welch (Leeds), Dr. L. E. H. Whitby.

Others Present.—Dr. J. W. McNee, Mr. Horace H. Rew (Secretary to the Examining Board), Dr. John Beattie (Conservator and Director of Research), Dr. W. R. Le Fanu (Librarian), Mr. Kennedy Cassels (Secretary), Mr. A. J. E. Cave (Assistant Conservator).

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The quarterly meeting of the Council was held in the College House on November 16th, with the President, Dr. J. S. Fairbairn, in the chair.

The following were elected Members of the College: Presley A. McCleod (Ontario), Cyril M. Plumptre (Madras), Thomas R. Plunkett (New Zealand), H. Rowntree (Amritsar).

Arthur Alexander Gemmell (Liverpool) was formally admitted to the Fellowship of the College, and the following to the Membership: Bernard Berger (South Africa), Glyn Alexander Davies (Sheffield), Francis Joseph Hayden (Melbourne), Arthur Machen Hill (Melbourne), Judah Leon Jona (Melbourne), Alice Meave Kenny (London), Hilda Nora Lloyd (Birmingham), Harold Ian McClure (Belfast), Leslie Bonthron Patrick (Sheffield), Terence George Robinson (Epsom), George Randolphe Sparrow (Sheffield), Garth Rivers Stoneham (Sheffield), Jane Bowden Stubbs (Manchester), William Ewart Chambers Thomas (Ashton-under-Lyne), Charles Keith Vartan (London), Ramsay Warden (Melbourne).

The following were admitted *in absentia*: *Foundation Fellow*: Ahmed Bey Shafik (Cairo); *Members*: Narendranath Basu (Calcutta), Jack Rowland Stanley Beard (Adelaide), James Black (Johannesburg), John Hillyer Boyd (New York), Waring Gerald Cosbie (Toronto), Herculano Diogo De Sa (Bombay), Kevin Cormack Donovan (Sydney), Malcolm Britnell Fraser (Sydney), Israel Goldberg (Capetown), Arthur Francis Hobson (Sydney), James Stoddart Hovell (Khartum), Thomas Dixon Hughes (Sydney), Jerusha Jhirad (Bombay), Hilda Mary Lazarus (Madras), Donald Mackintosh Low (Toronto), Ronald McRobert (Rangoon), Gordon Bradley Lowe (Croydon, New South Wales), Rupert Eric Magarey (Adelaide), Arthur Alexander Moon (Sydney), Ernest Ludlow Newman (Sydney), Hemendranarayan Ray (Calcutta), Ida Blanche Saunders (Sydney), Thomas Henry Small (Woollhra, New South Wales), Reginald Steven Townsend (Lucknow), Herman Brookfield Van Wyck (Toronto), James Waterman (Port-of-Spain).

At the close of the meeting Sir Ewen Maclean assumed the office of President. A vote of great appreciation of Dr. Fairbairn's services as President during the past three years was adopted.

The Services

The King has conferred the Efficiency Decoration of the Territorial Army on Lieut.-Colonel J. F. O'Grady, R.A.M.C., T.A., and Majors D. Stewart, R. J. W. A. Cushing, A. C. MacDonald, *M.C.*, and W. A. Jackman, R.A.M.C., T.A.

No. 29 GENERAL HOSPITAL DINNER

The seventeenth annual dinner of the 29th General Hospital will be held at Princes Restaurant, Piccadilly, W., on Saturday, December 14th, at 7.30 p.m., when Lieut.-Colonel S. H. Withers, C.M.G., will preside. Officers should communicate with the honorary secretary, Captain A. Percy Groves, Heronfield, Meadowcourt Road, Leicester.

PARKES MEMORIAL PRIZE, 1935

Surgeon Lieutenant J. L. S. Coulter, R.N., has been awarded the Parkes Memorial Prize for 1935, consisting of a gold medal and a sum of £30, for his essay, "Preparation for Tropical Service in the Royal Navy." The prize is awarded annually to the writer of the best essay on a subject connected with naval or military hygiene. The competition is open to medical officers of the Royal Navy, Army, and Indian Army, with the exception of the professors and assistant professors of the Royal Naval Medical School, Greenwich, and of the Royal Army Medical College, London, during their term of office.

Medico-Legal

USE OF THE TERM "SURGEON"

Jutson v. Barrow

As recorded in this column on November 2nd (p. 879) the King's Bench Divisional Court delivered on October 25th a judgement stating definitely, for the first time, that no one who is not a registered medical practitioner may call himself a surgeon, no matter what qualifying adjective he chooses to attach to the word, save in the case of dental surgeons and veterinary surgeons, whose titles are protected by statute.

The Medical Defence Union, by Mr. W. E. Jutson, had preferred last September three informations against Captain Horace Barrow of Paignton, an unregistered person, for affixing to his premises a plate bearing the words "Captain H. Barrow, M.M., Manipulative Surgeon." The Paignton magistrates dismissed the information and awarded Captain Barrow fifty guineas costs. The Divisional Court, consisting of the Lord Chief Justice, Mr. Justice Humphreys, and Mr. Justice Singleton, sent the case back to the local justices with an order to convict, but to impose only one penalty on the three informations. The award of fifty guineas was quashed.

Following this judgement the Paignton magistrates on November 15th imposed a fine of £10 on Captain Barrow, with an order to pay ten guineas costs. In announcing the decision Sir Alfred Goodson, chairman of the Paignton Bench, said that in fairness to them it should now be stated that their former decision was made by a majority, against the advice tendered by their clerk.

Medical News

Dr. Edward Mellanby, F.R.S., secretary of the Medical Research Council, will deliver a series of lectures entitled "A Survey of Modern Views of Nutrition," on Tuesdays, at 5.15 p.m., from November 26th to December 17th, both dates inclusive, at the Royal Institution, 21, Albemarle Street, W.

The annual dinner of the Old Epsomiam Club will be held at the Hotel Great Central on Thursday, December 12th, at 7 for 7.30 p.m.

The annual general meeting of the British Health Resorts Association will be held at 28, Portland Place, W., on Thursday, November 28th, at 4 p.m.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, November 28th, at 8.30 p.m., when Dr. F. J. McCann will read a paper on "Some Medico-Legal Problems in Connexion with Pregnancy and Parturition."

A sessional meeting of the Royal Sanitary Institute, in conjunction with the Yorkshire Branch of the Society of Medical Officers of Health, will be held at Barnsley Town Hall on Friday, November 29th, at 5 p.m., when Dr. J. A. Scott will open a discussion on "Diphtheria Immunization."

The first meeting of the 1935–6 session of the Fever Group of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, Russell Square, W.C., on Friday, November 29th, at 4 p.m., when Dr. E. H. R. Harries will deliver his presidential address on "Fever Hospital Practice in Retrospect and Prospect."

The next course of lectures and demonstrations on tropical hygiene for men and women outside the medical profession will be given by Lieut.-Colonel H. B. Newham, Mr. H. H. Clay, and Sir Malcolm Watson at the London School of Hygiene and Tropical Medicine on December 2nd, 3rd, 4th, 5th, 9th, 10th, 11th, and 12th, from 4 p.m. to 5 p.m. The fee for the course is £1 1s., payable in advance, and the synopsis may be obtained from the organizing secretary, Ross Institute, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.

The Buckston Browne Prize for 1935, which is given by the Harveian Society of London, has been awarded to William Robert Fearon, M.B., of Trinity College, Dublin, for his essay on "Nutritional Factors in Disease."

A meeting of the West London Medico-Chirurgical Society will be held at the De Vere Hotel, Kensington Road, W., on Friday, December 6th, at 8.30 p.m., when there will be a discussion on "The Medical Witness," to be opened by Sir Bernard Spilsbury, Dr. Edwin Smith, Sir William Willcox, and Judge Higgins. The meeting will be preceded by a dinner, at 7.30 p.m., for members who wish to dine.

The Fellowship of Medicine announces the following courses: infants' diseases, at the Infants Hospital, November 25th to December 7th; dermatology, at the Hospital for Diseases of the Skin, Blackfriars, S.E., November 25th to December 7th; proctology, at St. Mark's Hospital, November 25th to 30th. The following courses will be held at Brompton Hospital: chest diseases, especially suitable for general practitioners, November 30th and December 1st; thoracic surgery, December 2nd to 6th, occupying the whole of each day; and a special class for M.R.C.P. candidates on two days a week, from 5 p.m. to 6.30 p.m., from December 9th to January 10th (excluding Christmas week). During the latter period a class will be given at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E., on Wednesdays and Fridays, from 6 p.m. to 7.30 p.m. Full information may be obtained from the Fellowship of Medicine, 1, Wimpole Street, W.

The Royal Manchester Children's Hospital has embarked on a large scheme of developments and extensions which will require about £100,000. In order to give the public opportunities to become acquainted with the work done for the young at Pendlebury and elsewhere, and to give a good send-off to the Centenary Appeal Fund a Christmas Fair is to be held in the Free Trade Hall, Manchester, on November 23rd, 25th, and 26th.

Major W. A. Rankin, M.R.C.S., L.R.C.P., L.D.S. R.C.S.Ed., Army Dental Corps (Gray's Inn), was called to the Bar on November 18th.

The September issue of *Revista Espanola de las Enfermedades del Aparato Digestivo* contains an account of the proceedings of the first International Congress of Gastro-enterology, held recently at Brussels.

A conference called by the Maternal Mortality Committee was held in London at the end of June to consider the policy which had been drawn up by that body for the promotion of an adequate maternity service. In the *Journal* of July 6th (p. 35) a note on the proceedings of the conference included a statement of the policy adopted. The committee has now issued a pamphlet of twenty pages on the schemes considered at the conference; also two leaflets—one setting out the policy in its latest form and the other an explanatory note. Copies may be obtained from the honorary secretary, Miss Gertrude M. Tuckwell, 13, Chester Terrace, S.W.1.

John Bartholomew and Son Ltd., Duncan Street, Edinburgh, 9, have published a new map of Ethiopia and adjoining territories—printed in colours. The scale is 1:4,000,000, or about 65 statute miles to an inch, and the size, within borders, is 27½ inches by 24 inches. The price is: on cloth, folded, 3s.; on paper, folded, 1s. 6d.

Dr. Axel Munthe has given King Gustav of Sweden the sum of 100,000 kronor, which he describes as a gift from the book *San Michele*, for charitable purposes, including help for needy Laplanders and the protection of bears from mankind.

Dr. George R. Minot of Boston and Dr. George H. Whipple of Rochester have been elected members of the Imperial Leopold Caroline German Academy of Natural Science at Halle.

The French Society of Gynaecology has nominated Professor Emilio Alfieri, director of the gynaecological institute of Milan University, as president of honour of the French Congress of Gynaecology, to be held in 1936, in place of the late Professor Ernesto Pestalozzi.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

"Black Tongue"

"G. T. B." requests information about a patient with a very thick dense black fur on the tongue, which came without cause two months ago, and which resists all treatment. Can anyone, he writes, suggest the cause and how to treat it. All simple remedies—glyc. acid. boric., glyc. acid. carbol., diluted hydrogen peroxide—have been tried without avail. The patient is not taking iron or sucking lozenges.

⁂ An inquiry on this subject appeared in the *Journal* in October, 1925, when a correspondent recalled that "black tongue" is mentioned in *Diseases of the Tongue*, by Butlin and Spencer (1900, p. 145). The treatment there recommended was to assure the patient that this condition was a mere curiosity, and that if active measures were deemed necessary then painting the tongue with a 2 per cent. solution of salicylic acid might be tried, or rubbing in a solution of carbolic acid, 1 in 60, with a soft piece of rag, three or four times a day. Lactic acid was also said to be useful.

Oxaluria

"A. B. C." writes: Could any reader suggest treatment for an athletic young man, aged 20 years, who suffers from recurrent painful attacks of oxaluria, accompanied on occasion by haematuria? The usual dietary restrictions have failed to benefit the condition.

Treatment of Cataract

"G. P." writes from Yorkshire: Is there any orthodox teaching or hospital experience on the treatment of senile cataract by means of (1) ascorbic acid, and (2) injections of lens extract? Is any benefit ever derived from these medicaments? What course of treatment is necessary, and what preparations are availab'e? Or are the above treatments of no value whatever, and merely apparently successful coincidences in a limited number of cases?

⁂ Reference to the treatment of cataract by vitamin C and by lens extract was made in annotations in the *Journal* of October 19th under the heading of "Dinitrophenol Cataract," and in the *Journal* of July 13th under "Cataract and its Medical Treatment."

Pruritus Vulvae et Ani

"PERPLEXED" asks for suggestions in the treatment of a patient, aged 45, with severe pruritus of vulva and anus, which also covers large areas of skin over the thighs and buttocks. She still menstruates irregularly, and the irritation is always worse before a period. The urine is normal. Nothing alleviates the terrible itching. Lotions such as lead, calamine, and carbolic have been tried, also Dakin's solution and carron oil. Hexamine and ergot and iron have been given internally.

Income Tax

Appointment—Car Expenses—Subscriptions

"S. K." is a county council M.O.H.; he receives a car allowance based on official mileage rates, but finds it insufficient to cover his expenses. Can he deduct subscriptions to the British Medical Association, Society of Medical Officers of Health, and the Medical Defence Union? His council "strongly recommends" its medical officers to belong to these associations.

*** It is a settled practice in connexion with car expenses that the division between professional and private use should be based on a mileage ratio, and "S. K." is unlikely to succeed in getting that basis set aside in his case. Further, the income tax deduction is for expenses "wholly, exclusively, and necessarily" incurred in performing the duties of the office, and in our experience income tax commissioners almost invariably take the view that a mileage allowance laid down by a local authority should be regarded as adequate—that is, as covering "necessary" expenditure. In the test case on subscriptions (Simpson *v.* Tate) membership of such associations was admitted to be customary, but the judge ruled that it must be a necessary expense—that is, that there must be a definite requirement of membership by the council. We fear "S. K." has no prospect of success on appeal.

LETTERS, NOTES, ETC.

Prevalence of Pediculosis Capitis

"F. S." writes: One of the duties of a factory surgeon is to examine the hair of prospective employees, and it would be of interest if the very marked increase in pediculosis capitis has been noted by others. Let us take the last four examinations: September 3rd, five out of ten were found to be infected; September 6th, eight out of nine were found to be infected; September 30th, five out of twelve were found to be infected; October 1st, eleven out of fourteen were found to be infected. If one deals only with the economic aspect of this it causes many days of lost employment, though to look into the problem further, where does it end? The following example is not exceptional. A girl, rejected temporarily, presented herself for re-examination the following week with her hair beautifully bobbed and set, but still severely affected with pediculosis capitis. Every prospective employee suffering from pediculosis is carefully instructed by a trained nurse as to the means of treating the condition and also the prevention of reinfection; yet a visit to a hairdresser for a shampoo seems to many a simple solution. It would not take a Solomon to appreciate the line of communication to one's own household, though whether even he would have had the moral courage to examine his own cook's or nursemaid's hair is another story. The great majority of cases are found in boys and girls who have just left school, and one questions what the school authorities are doing. Two further points have been observed by me: (i) boys are less affected than girls, though it is by no means limited to children; (ii) if there is severe pityriasis capitis pediculosis capitis is nearly always absent.

Oleothorax for Tuberculous Empyema

M. FRANÇOIS PREVET (Laboratoire des Produits du Gomenol, Paris), in the course of a communication on this subject, writes: "Our attention has been drawn to a letter in the *British Medical Journal* of November 9th over the signature of G. S. Erwin, under the title 'Oléothorax for Tuberculous Empyema,' following the article by Mr. M. P. Susman, which appeared in your publication of October 12th, and we are surprised at his personal remarks respecting his experience with gomenol and its doubtful antiseptic value. We do not know if this physician has employed the gomenol or gomenoléos manufactured by our laboratories, but we would like to emphasize that we have the trade-mark rights of the use of this name, and owing to the success of our products substitutes have appeared on the market in some countries which unquestionably are of doubtful value. Dr. Erwin's remarks are certainly not substantiated by the evidence of the use of gomenol and the gomenoléos in the treatment of tuberculosis by oleothorax technique." M. Prevet's letter ends with a list of references to recent French and British publications, sixteen in all, bearing upon the employment of gomenol in oleothorax therapy.

Smoke Abatement

The sixth annual report of the National Smoke Abatement Society (36, King Street, Manchester, 2), which covers the twelve months ended June 30th, 1935, reveals that better progress has been made than ever before, and that the rate of advance of the movement is accelerating most satisfactorily. Smokeless housing estates are now beginning to appear. The high qualities of low-temperature carbonization and other free-burning fuels, and the efficiency and convenience of the several makes of coke-burning grates, are held to be responsible for the gradually growing conviction that smoke and the open fire are not necessarily inseparable. The public appears to be becoming conscious of the smoke evil, and local authorities are becoming more enlightened. The antagonism of certain sections of the coal industry is regretted, and it is hoped that research may render possible the development of the smokeless coal fire and so put an end to any opposition from this quarter. An appeal is made to the general public to experiment on a larger scale with smokeless fuels. The annual congress of the society next year is to be held in Leeds. Many lectures and exhibitions were arranged during the year under review, and the society has taken part in health exhibitions at Walthamstow, Leeds, Gloucester, London, and Liverpool. A strong appeal is made for more financial support in order to intensify the propaganda work.

Combined Deaf Aid and Stethoscope

The Multitone Electric Company, Ltd., Islington, N.1, announces the production of an instrument which can be used by the doctor "for stethoscopic purposes or as an ordinary deaf aid." It consists of a three-valve amplifier, housed in a small attaché-case, weighing about 7½ lb. A non-carbon microphone is employed with the object of excluding extraneous noises. The instrument has three applications: (1) as a stethoscope for listening to heart sounds, etc., for the use of deaf doctors who listen with special telephone receivers; (2) as a deaf aid; and (3) as a stethoscope for reproducing heart and other sounds on a normal loud-speaker by means of which demonstrations can be made to classes of students. The price of the instrument is £25.

Epidiascopes

Newton and Co., of 72, Wigmore Street, W.1, have issued an illustrated catalogue of British-made epidiascopes. The standard forms are now provided with a cooling van, which draws out the hot air at the top of the instrument, the cold air being drawn in over the object table and so decreasing the risk of damage by heat to the exhibits. Arrangements can also be made for the inclusion of a water tank between the lamp and the exhibit for specimens which are highly fragile or destructible. A small projection microscope is also fitted. The manipulation of these instruments is very simple, and the services of a special operator are not required.

Internal Rectus Exerciser

Mr. SYDNEY TIBBLES writes: The registration number of the apparatus described by me in the *Journal* of November 16th (p. 953) is 807683.

Corrigendum

Our correspondent in Scotland informs us that the statement in the *Journal* (November 2nd, p. 865) that Dr. Robert McWhirter, prior to his appointment as radiologist to the Edinburgh Royal Infirmary, was acting radiologist in the absence of Dr. A. E. Barclay is not quite correct. Dr. McWhirter was acting radiotherapist with the title of extra senior assistant radiologist, and Dr. C. Bellamy was deputy radiologist with the title of senior assistant radiologist.

The British Drug Houses Ltd. (Graham Street, City Road, N.1) have issued a fourth, revised and enlarged, edition of their booklet on "*p*H Values, What they are and how to determine them." A copy will be sent free of charge to any reader who applies to the firm at the address given above.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 232.